INITIAL STUDY

MONTEREY ROAD - YOUNG
MORGAN HILL, CALIFORNIA

ZONING AMENDMENT: ZA-14-19
SUBDIVISION: SD-14-09
DEVELOPMENT AGREEMENT: DA-14-08
ENVIRONMENTAL ASSESSMENT: EA-14-19

CITY OF MORGAN HILL

MARCH 2016

INITIAL STUDY

MONTEREY ROAD - YOUNG RESIDENTIAL DEVELOPMENT MORGAN HILL, CALIFORNIA

PREPARED FOR
CITY OF MORGAN HILL
DEVELOPMENT SERVICES CENTER DEPARTMENT
17575 PEAK AVENUE
MORGAN HILL, CA 95037

MARCH 2016

PREPARED BY
GEIER & GEIER CONSULTING, INC.
P.O. BOX 5054
BERKELEY, CA 94705-5054
510/644-2535

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CITY OF MORGAN HILL
DEVELOPMENT SERVICES CENTER DEPARTMENT
ENVIRONMENTAL CHECKLIST FORM

PROJECT INFORMATION

PROJECT TITLE:
Monterey Road - Young
Residential Development

PROJECT LOCATION:
15335 Monterey Road, west of Monterey Road and north of Watsonville Road
(Figure 1)

LEAD AGENCY NAME AND ADDRESS:
City of Morgan Hill
Development Services Center Department
17575 Peak Avenue
Morgan Hill, CA 95037

CONTACT PERSON AND PHONE NUMBER:
Steve Golden, 408/778-6480
(email: Steve.Golden@morganhill.ca.gov)

PROPERTY OWNER:
The Young Family (multiple owners)
556 Rhodes Drive
Palo Alto, CA 94303

PROJECT APPLICANT:
Presidio Mana Young, LLC
5927 Balfour Court, Suite 208
Carlsbad, CA 92008
Contact: Orville Power (619) 876-6132
(op@manainv.com)
Contact: DPC-Vince Burgos (408) 421-2695
(vburgos@hotmail.com)

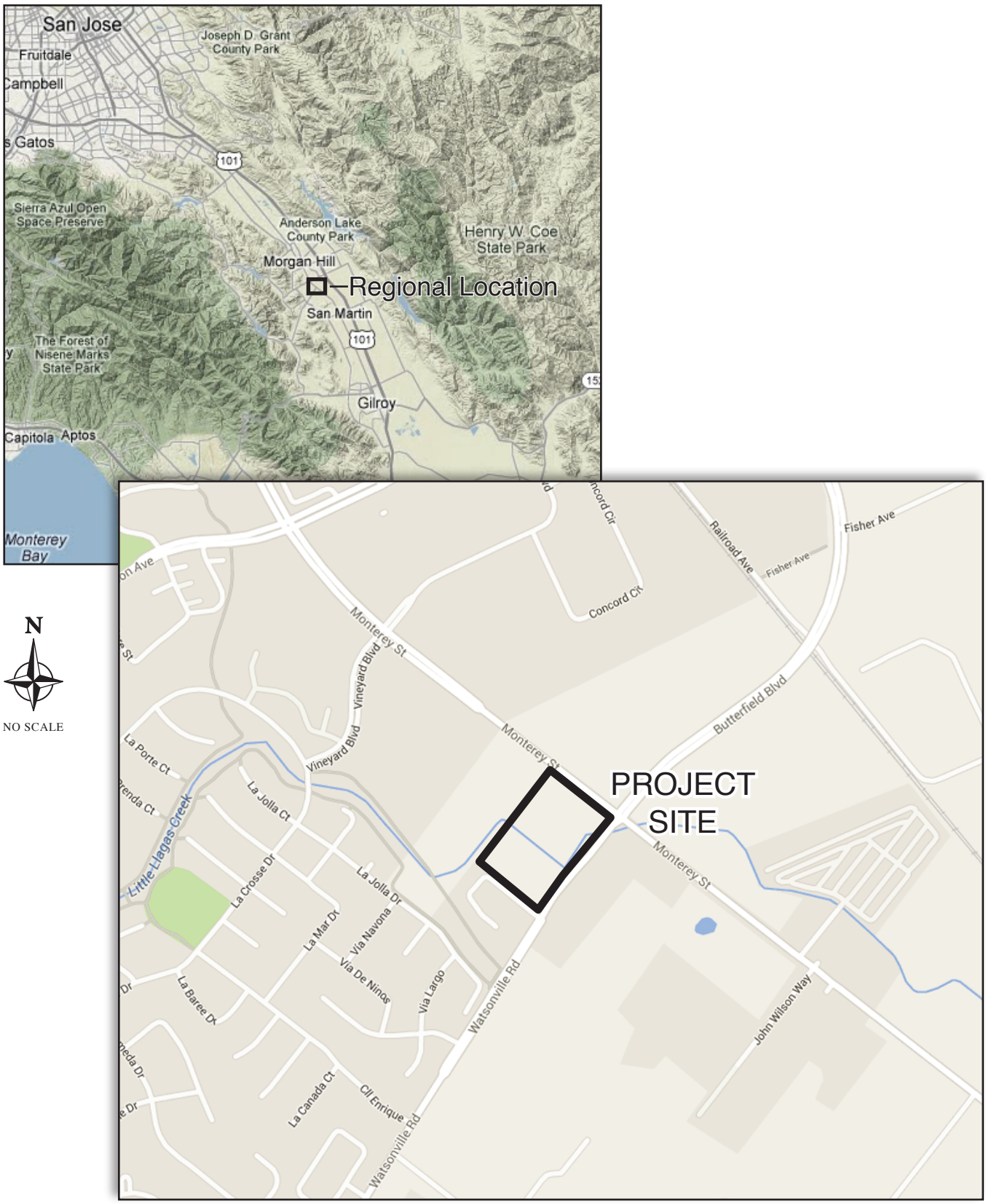
GENERAL PLAN DESIGNATION:
Multi-Family Low, 5-14 dwelling units/acre

ZONING:
R2-3,500: Medium-Density Residential District (minimum site area per dwelling unit: 3,500 square feet)

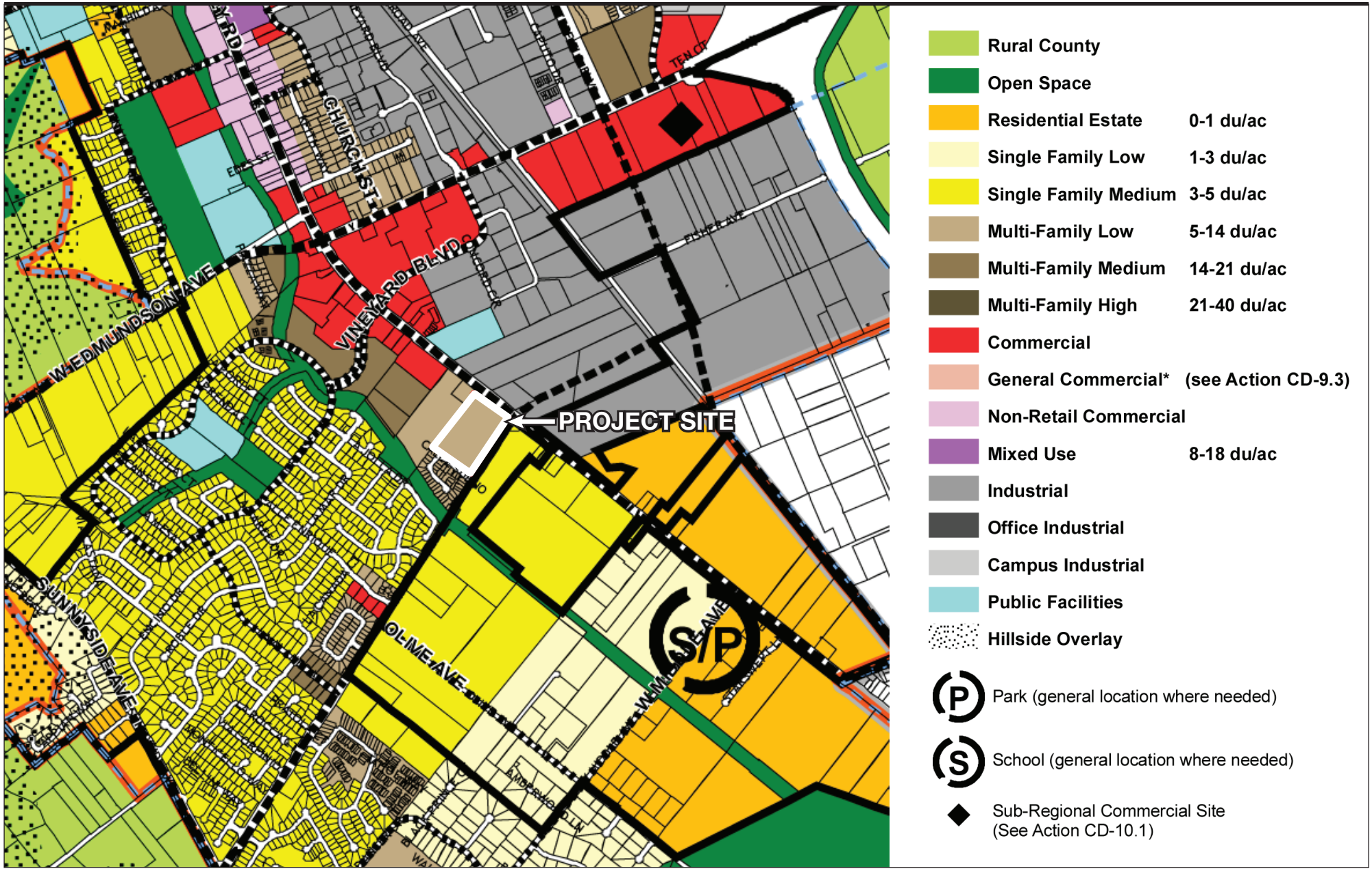
PROJECT DESCRIPTION

Existing Setting. The 9.35-acre project site is located immediately west of the intersection of Monterey Road and Watsonville Road, within an urbanized portion of Morgan Hill. **Figure 1** shows the location of the project site. The subject property is comprised of one parcel (APN 767-23-030) that has been historically used for agricultural purposes.

The subject property is nearly level, with a slight slope to the east, with elevations ranging from approximately 322 above mean sea level at the northwestern corner of the site to 311 feet at the southeastern corner. The project site is currently undeveloped. The project site has General Plan land use designation for Multi-Family Low Density that allows for 5 to 14 dwelling units per acre. Zoning for the project site is R2-3,500, the same residential zoning district as adjoining properties to the south and west. **Figures 2 and 3** indicate the General Plan land use designations and zoning for the site and vicinity, respectively.



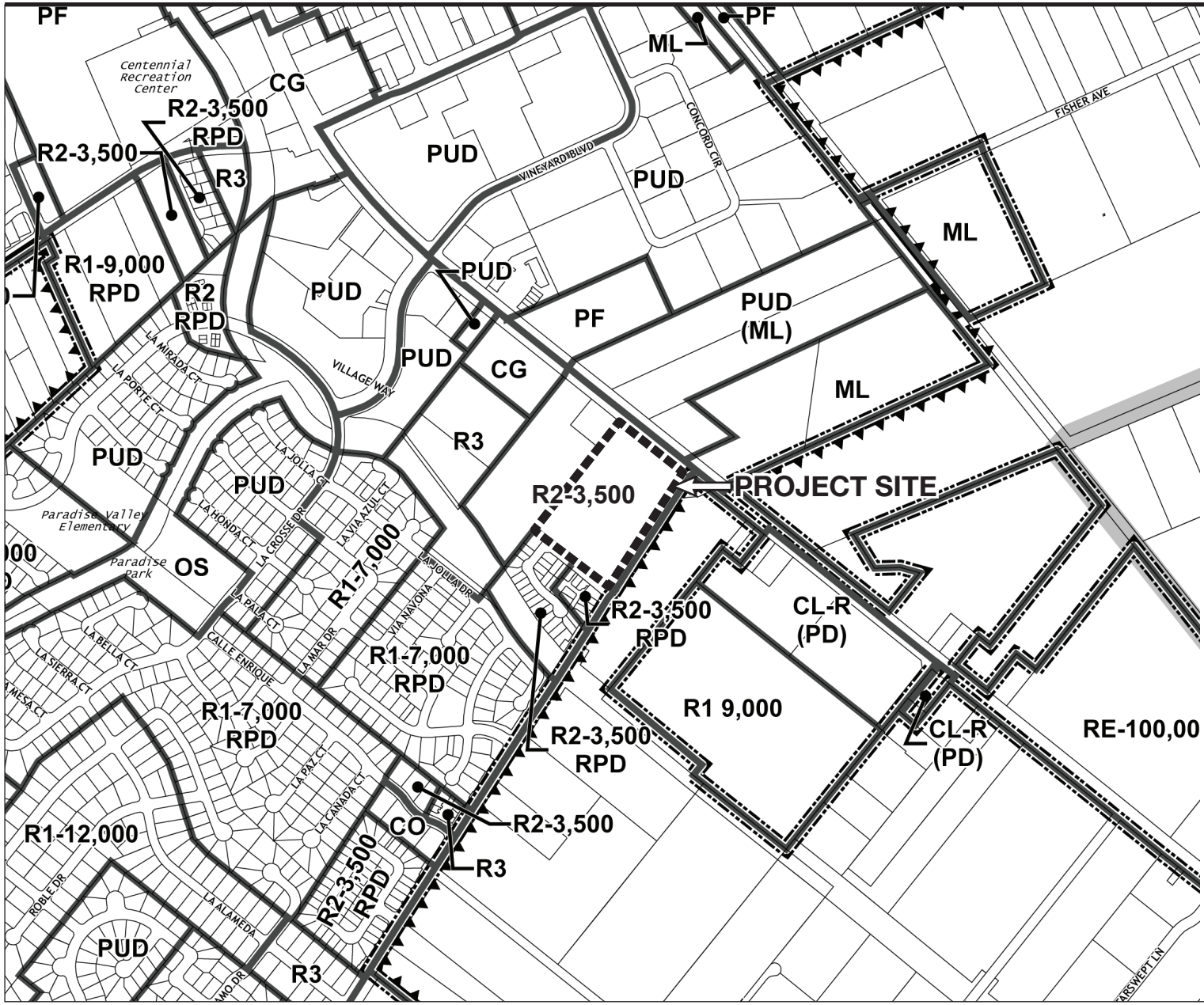
Source: Geier & Geier Consulting, Inc. (2015)



Source: City of Morgan Hill (2012)

Zoning for Project Site and Vicinity

Figure 3



OS	Open Space District
RE	Residential Estate District
R1	Single-Family District
R2	Medium-Density Residential District
R3	Medium-Density Residential District
R4	High Density Residential District
RPD	Residential Planned Development Overlay District
CBD	Central Business District
CN	Neighborhood Commercial District
CG	General Commercial District
CC-R	Central Commercial, Residential District
D-	Downtown Specific Plan
GF	Downtown Ground Floor Overlay District
CL-R	Light Commercial Residential District
CS	Service Commercial District
CO	Administrative Office District
CU	Commercial Use Overlay
HC	Highway Commercial District
PUD	Planned Unit Development District
MG	General Industrial District
ML	Light Industrial District
MO	Office Industrial District
MC	Campus Industrial District
PF	Public Facilities District
(c)	Conditional Zoning
( )	Overlay District

Source: City of Morgan Hill (2012)

Regional access to the project site is available from State Highway 101, located approximately 0.8 mile east of the project site. Local access to the site is provided by Monterey Road and Watsonville Road. Monterey Road extends along the site's eastern boundary, while Watsonville Road extends along the site's southern boundary. Residential uses currently adjoin the western project boundary. A commercial office building (Morgan Hill Therapy) adjoins the northeastern project boundary, fronting on Monterey Road. There are also residential uses to the east, across Monterey Road. The Royal Oaks Mushroom Farm is located to the south, across Watsonville Road. Land uses in the vicinity of the proposed residential development are indicated on the aerial view of the project site in **Figure 4**.

Proposed Residential Development. The project applicant is requesting approval for the following on the 9.35-acre site (APN 767-23-030):

- Rezoning of the project site from R2-3,500 to R2-3,500PD and approval of a precise development plan;
- Subdivision of the eastern portion of the project site into 37 residential lots;
- Approval of a Development Agreement to establish a development schedule and ensure the developer fulfills project commitments;
- Approval of Design Review application (not yet submitted, but will be required by Municipal Code); and
- Construction of 37 attached residences, common space amenities/open space area, and all related improvements such as roadways, sidewalks, driveways, utilities, etc.

The proposed project would involve the development of a total of 37 residences on the portion of the project site located north of West Little Llagas Creek (approximately six acres). The remaining 3.4 acres to the south of this creek (Parcel L) would remain undeveloped with no future use proposed. The areal extent of proposed uses on the project site would be as follows:

Proposed Use	**Areal Extent**
▪ Public Street Dedication (Watsonville Road and new public street rights-of-way)	±0.95 acre
▪ Private Drives A - E (Parcel A)	±0.73 acre
▪ Residential Lots	±1.80 acres
▪ Open Space/Detention Basin (Parcels B, C, D, E, F, G, H, I, J, and K)	±2.46 acres
▪ Portion of Site to Remain Undeveloped (Parcel L)	±3.41 acres
Total	±9.35 acres

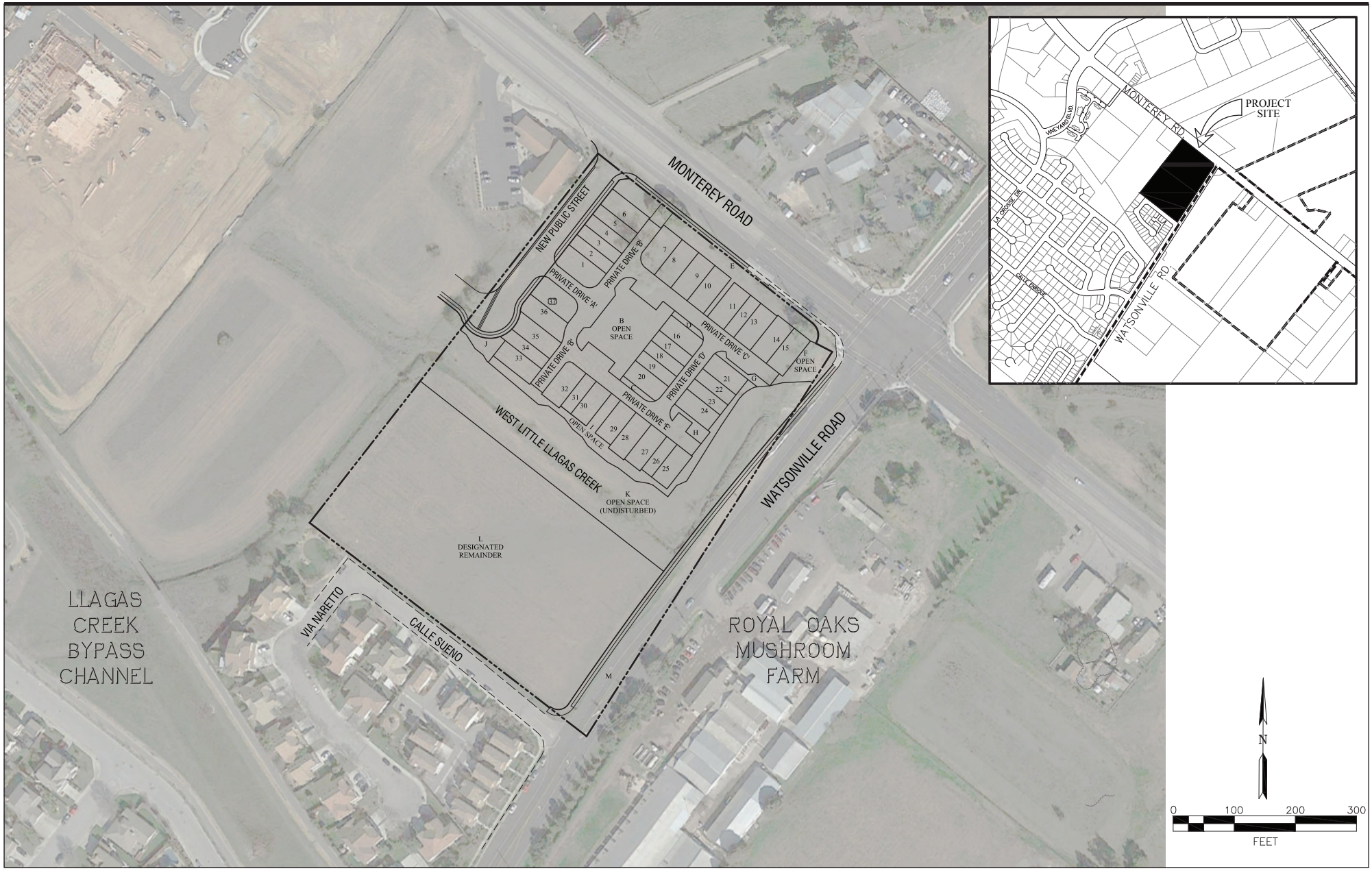
Of the 37 residences, 27 units would be multi-family attached residences (townhouses) while 10 units would be duets. The 10 lots for the duet units (Lots 7/8, 9/10, 14/15, 28/29, and 36/37) would range in size from approximately 2,167 square feet (s.f.) to 2,929 s.f., while lots for the townhouses would vary in size from 1,424 s.f. to 2,904 s.f. The 27 townhouses would be comprised of four triplex buildings (Building B, Lots 11-13, 25-27, 30-32, and 33-35), one four-plex building (Building C, Lots 21-24), one five-plex building (Building D, Lots 16-20), and one six-plex building (Building E, Lots 1-6). All of the proposed residential units would include attached garages for two vehicles. **Figure 5** shows the proposed site plan for the residential development.

Figures 6a through **6e** present typical elevations for the proposed residences. Typical front elevations of the proposed duet units are depicted in Figure 6a. Typical front elevations of the proposed townhouses are shown in Figure 6b for the four triplex buildings, Figure 6c for the one four-plex building, Figure 6d for the one five-plex building, and Figure 6e for the one six-plex building.

As indicated in Figure 5, the project design includes development of a public street and private loop road. Project residences would be accessed from Monterey Road via a proposed public street at the project's northeast corner. This street would extend along the site's northern boundary, and a private loop drive would connect to the public street approximately 200 feet west of Monterey Road. The private loop drive

Project Development and Vicinity

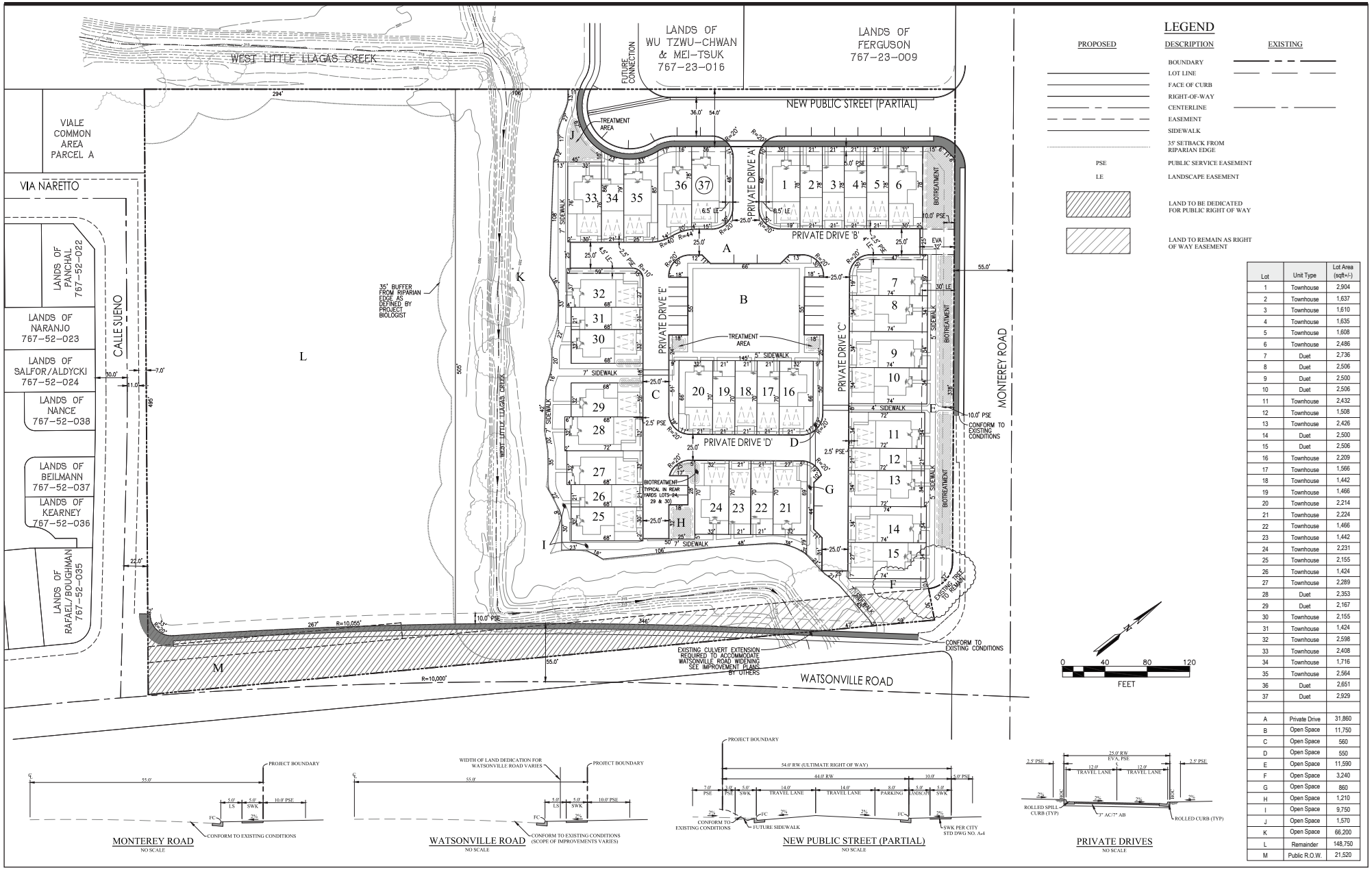
Figure 4



Source: Ruggeri Jensen Azar (2015)

Site Development Plan

Figure 5



Lot	Unit Type	Lot Area (sqft+/-)
1	Townhouse	2,904
2	Townhouse	1,637
3	Townhouse	1,610
4	Townhouse	1,635
5	Townhouse	1,608
6	Townhouse	2,486
7	Duet	2,736
8	Duet	2,506
9	Duet	2,500
10	Duet	2,506
11	Townhouse	2,432
12	Townhouse	1,508
13	Townhouse	2,426
14	Duet	2,500
15	Duet	2,506
16	Townhouse	2,209
17	Townhouse	1,566
18	Townhouse	1,442
19	Townhouse	1,466
20	Townhouse	2,214
21	Townhouse	2,224
22	Townhouse	1,466
23	Townhouse	1,442
24	Townhouse	2,231
25	Townhouse	2,155
26	Townhouse	1,424
27	Townhouse	2,289
28	Duet	2,353
29	Duet	2,167
30	Townhouse	2,155
31	Townhouse	1,424
32	Townhouse	2,598
33	Townhouse	2,408
34	Townhouse	1,716
35	Townhouse	2,564
36	Duet	2,651
37	Duet	2,929
A	Private Drive	31,860
B	Open Space	11,750
C	Open Space	560
D	Open Space	550
E	Open Space	11,590
F	Open Space	3,240
G	Open Space	860
H	Open Space	1,210
I	Open Space	9,750
J	Open Space	1,570
K	Open Space	66,200
L	Remainder	148,750
M	Public R.O.W.	21,520

Source: Ruggeri Jensen Azar (2015)

PROGRESSIVE CRAFTSMAN

CONTEMPORARY FARMHOUSE

CONTEMPORARY RANCH

Source: Bassenian | Lagoni Architects (2015)

PROGRESSIVE CRAFTSMAN

CONTEMPORARY FARMHOUSE

CONTEMPORARY RANCH

PROGRESSIVE CRAFTSMAN

CONTEMPORARY FARMHOUSE

CONTEMPORARY RANCH

Source: Bassenian | Lagoni Architects (2015)

PROGRESSIVE CRAFTSMAN

CONTEMPORARY FARMHOUSE

CONTEMPORARY RANCH

PROGRESSIVE CRAFTSMAN

CONTEMPORARY FARMHOUSE

CONTEMPORARY RANCH

Source: Bassenian | Lagoni Architects (2015)

(comprised of private drives A through E) would provide access to all project residences from this newpublic street. The public street would extend westward another 150 feet, then turn north and terminate at adjacent property line (east of West Little Llagas Creek). It is assumed that the future development of the adjacent property to the north would extend the public street to provide secondary access to serve the future development of that site and connect to Rome Avenue further north. The proposed public street would have a pavement width of 36 feet (two travel lanes with a parking lane on the south side) and right-of-way width of 54 feet. A sidewalk would be constructed along the south side. The private drives would have a pavement width of 25 feet with rolled curbs.

Proposed Open Space. The project plans include the development of a 0.27-acre open space area in the center of the residential development (Parcel B, 11,750 s.f.). In addition, the site design specifies 0.67 acre of open space areas (29,300 s.f., Parcels C through J), which generally extend along both sides of the proposed private drives, west side of Monterey Road, and the western and southern perimeter of proposed residential development. West Little Llagas Creek bisects the project site and Parcel K (66,200 s.f. or 1.52 acres) would retain the creek and adjacent areas as open space. South of the creek, the remainder of the site (3.41 acres, Parcel L) would remain undeveloped.

Proposed open space areas (Parcels C through J) would be used for bioretention/ bioswales/ biotreatment to treat storm runoff generated by the project's impervious surfaces. The project HOA would be responsible for the maintenance of the biotreatment/open space areas.

Off-Site Improvements. The proposed project includes the widening and partial repaving of Watsonville Road from its intersection with Monterey Road westward to the intersection with Calle Sueno. The widening near Monterey Road would include demolition of parts of the roadway, an approximate 20-foot extension of a box culvert, grading of West Little Llagas Creek banks, relocation of catch basins and storm drains, relocation of utilities, partial demolition of a berm, and relocation of rip-rap rock for the extended culvert.

SURROUNDING LAND USES

The proposed residential project would be developed on the northern portion of a 9.35-acre parcel that is primarily surrounded by urban/suburban development. As indicated in Figure 4, residential uses currently adjoin the western project boundary Along the project's northern boundary is a commercial office building (Morgan Hill Therapy) fronting on Monterey Road as well as a vacant parcel with a planned land use for Multi-Family Low Density residential development. An existing single-family residence is located immediately across the site on Monterey Road to the east. The Royal Oaks Mushroom Farm is located to the south, across Watsonville Road.

The closest commercial uses to the site are located on Monterey Road, approximately 0.16 mile to the north. The Morgan Hill Caltrain station is located approximately 2.5 miles to the north of the project site, while the San Martin Caltrain station is located approximately 1.9 miles to the south. Public recreational facilities in the project vicinity include: West Little Llagas Creek Bike and Walking Trail (located approximately 300 feet west of the site); a loop trail from LaCrosse Drive to Watsonville Road); Paradise Park (located approximately 0.3 mile northwest of the site; and Paradise Valley Elementary School facilities (located approximately 0.4 mile northwest of the project site).

OTHER AGENCIES WHOSE APPROVAL IS REQUIRED

In addition to the City of Morgan Hill, lead agency for the proposed project, responsible agencies having discretionary approval or jurisdiction by law over natural resources affected by the project, specifically for road widening requirements, include the following: US Army Corps of Engineers, California Department of Fish and Wildlife, and the Regional Water Quality Control Board.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages:

☐	Aesthetics	☐	Agriculture Resources	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☒	Geology/Soils
☐	Greenhouse Gases	☒	Hazards & Hazardous Materials	☒	Hydrology/Water Quality
☐	Land Use/Planning	☐	Mineral Resources	☒	Noise
☐	Population/Housing	☐	Public Services	☐	Recreation
☐	Transportation/Traffic	☐	Utilities/Service Systems		

DETERMINATION: (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
X	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Andrew Crabtree, Community Development Director

March 8, 2016
Date

ENVIRONMENTAL CHECKLIST AND DISCUSSION OF IMPACTS

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Aesthetics - Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

1a. Scenic Vistas

The project site consists of approximately 9.35 acres of relatively level land immediately west of the intersection of Monterey Road and Watsonville Road, within an urbanized portion of Morgan Hill. The subject property is comprised of one parcel (APN 767-23-030) that has been historically used for agricultural purposes; there are no structures on the site. The site slopes slightly to the east, with elevations ranging from approximately 322 above mean sea level (msl) at the northwestern corner of the site to 311 feet above msl at the southeastern corner. A reach of West Little Llagas Creek enters the subject property on its northwestern perimeter and crosses site to the southeast, bisecting the project site as a linear drainage channel. Mature trees line a section of the site's northeastern boundary, the property's frontage on Monterey Road, and at the eastern corner of the site on Watsonville Road. Small stands of willows occur along the bank of the site's creek channel.

Land uses surrounding the project site include residential and commercial development, and agricultural operations; residential and commercial development within the project vicinity are on elevations similar to those of the site. Views of the project site are principally available to the public from four roadways adjoining the subject property. Two streets, Monterey Road to the northeast and Watsonville Road on the site's southeast boundary, are major arterials that provide regional access to the project vicinity. Calle Sueno and Via Naretto are residential streets that adjoin the site on its southwest perimeter and serve a small residential subdivision. Views of project site are also available from seven single-family homes served by Calle Sueno along the property's southwestern boundary.

Due to the site vicinity's distance from the Santa Cruz Mountains to the west and the Diablo Range to the east, potential views of scenic vistas are limited to low ridgelines that occur on the distant horizon. These ridgelines constitute a small component of views that are available to motorists and affected residents in the project area. Motorists traveling north on Monterey Road near the site have intermittent glimpses of El Toro Mountain to the northwest of the subject property; however, these views are screened by mature trees on private properties and commercial uses along Monterey Road. Similarly, motorists travelling southwest on Butterfield Boulevard and Watsonville Road view the Santa Cruz Mountains as a distant backdrop to the agricultural, commercial, and residential uses that comprise foreground views. Brief glimpses of El Toro Mountain are available as side views for Watsonville Road motorists travelling both directions on this road. Potential adverse affects on these public views from Watsonville Road would be limited since the proposed residential development of the project site would be confined to the northern

half of the site. Existing views of El Toro Mountain from this roadway would remain available across the southern portion of the site, which is not proposed for development.

In addition to the travelling public, views of and across the project site are available from the homes in the subdivision served by Calle Sueno. Front and side yard views from the seven homes adjoining the project site are comprised of the site's open agricultural field in the foreground and distant views of the Diablo Range ridgeline. Intervening urban development and associated landscaping screen and filter the views of the ridgeline; front and side yard landscaping and fencing for these homes also moderate both foreground and distant views of and across the project site. The proposed project would retain the existing undeveloped, open fields on the southern part of the site, thereby minimizing potential visual effects of site residential development on the adjoining residents to the south of the site. Consequently, the proposed project would have no significant adverse effects on scenic resources.

1b. Scenic Resources Within a State Scenic Highway

There are no state-designated scenic highways in the project vicinity and, therefore, the project would not affect scenic resources within a state scenic highway.

1c. Visual Character

The visual quality and character of the project site is defined by its current condition as an open field, while the visual character of the project area setting is formed by the suburban residential uses to the south of the site, the commercial development to the north of the property, and the agricultural/ commercial operations (Royal Oaks Mushroom Farm) to the east of the site, across Watsonville Road. In addition, vacant lots and agricultural properties to the west and north of the project, across Monterey Road, contribute to a semi-rural character of the project vicinity. Private views of the project site are primarily available from the front and side yards of residences on streets immediately adjoining the site, i.e. Calle Sueno and Via Naretto. Public views of the project site are available to travellers on Monterey Road and Watsonville Road..

The public travelling on Watsonville Road has limited views of the project site. These views are available for the approximately 750-foot frontage along the north side of the street. Beyond these distances, front yard and street landscaping along Watsonville Road and Butterfield Boulevard obstruct views of the project site. Direct views of the project site from Monterey Road are filtered or screened by site trees that extend along the site's frontage on this street.

The development of the vacant project site with 37 residential units would partially change the character of the project site from an open vacant lot to suburban residential uses. The proposed project would develop the northern half of the site (4.42 of 9.35 acres) for the residential units, public and private access roads, communal recreational open space, bioretention basins, and private yards. The project proposal entails the removal of trees on the project site's northwestern and Monterey boundaries to accommodate the development of the project residences. The southern part of the project site, the creek channel, and a buffer riparian zone on both sides of the creek totaling 4.93 acres (52%) of the site would remain in their current condition as private open space.

The project's proposed residential units would be consistent with the existing residential development of the adjoining and nearby neighborhoods developed immediately south of the project site and west of Watsonville Road, and to the north of the project site and west of Monterey Road (e.g. Diamond Creek Villas). The proposed two story residential units are within the zoning code development standards in character with the building heights of the surrounding existing development The current visual character of the site as seen from the residences on these streets would be replaced by front and side yard views of the residential units proposed for the project site. Required landscaping on the private lots and street tree planting would moderate views of the two-story residences from residences on Calle Sueno. The landscaping plans for the project would include street trees along Monterey and Watsonville roads, and

the new public street accessed from Monterey Road. The visual character of the site would change from one of agricultural or semi-rural to suburban residential use. This change in visual character would be consistent with the existing character of adjoining neighborhoods to the south. Consequently, the proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings.

1d. Light or Glare

The project site is undeveloped and there are no sources of light or glare. The development of a new public street and private drives as well as additional housing on the site would introduce new light sources at the site. Proposed exterior lighting for new residences will need to conform to the design standards stipulated by City Building Code, which will ensure that project lighting would not adversely affect adjacent properties.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
2. Agriculture and Forestry Resources – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Dept. of Forestry and Fire Protection regarding the state's inventory of forest land, and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined in Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

2a, 2b, 2c, 2d, 2e. Farmland, Agricultural, and Forestry Uses

The area is mapped as "Grazing" land type on the Santa Clara County Important Farmland Map prepared by the Farmland Mapping and Monitoring Program of the California Resources Agency (2012). The City of Morgan Hill General Plan currently designates the project site for multi-family residential development and is also zoned for this use. The 9.35-acre project site is presently vacant, but was previously in agricultural use. While the Royal Oaks Mushroom Farm is located to the east of the site across Watsonville Road, the majority of the surrounding area is suburban residential properties, constraining continued agricultural use of the site. Given the small size of this parcel, current residential uses immediately adjacent to the property, current zoning, and the extensive residential development to the north and west the project site, project development would have a less-than-significant effect on the conversion of the site to a non-agricultural use.

It should be noted that the City formulated agricultural policies and prepared an implementation program to guide the conservation of agricultural lands within the City's Sphere of Influence area.[1] The City has designated agricultural lands in the Southeast Quadrant of the community for conservation and continued agricultural use.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
3. Air Quality - Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

3a. Air Quality Planning

The San Francisco Bay Area Air Basin (SFBAAB) is classified by the Bay Area Air Quality Management District (BAAQMD) as non-attainment for ozone and inhalable particulates (PM_{10}). To address these exceedances, the BAAQMD, in cooperation with the MTC and ABAG, prepared the *Bay Area 2005 Ozone Strategy (BAOS)* in September 2005 and *Particulate Matter Implementation Schedule (PMIS)* in November 2005. The PMIS discusses how the BAAQMD implements the California Air Resources Board's 103 particulate matter control measures. The most recently adopted air quality plan in the Basin is the *2010 Bay Area Clean Air Plan* (*CAP*). This *CAP* outlines how the SFBAAB will attain air quality

[1] City of Morgan Hill, 2011. *Morgan Hill Agricultural Policies and Implementation Program*. December 22.

standards, reduce population exposure and protect public health, and reduce greenhouse gas (GHG) emissions.

The consistency of the proposed project with the most recently adopted regional air quality plan, the *CAP,* is determined by comparing the project's consistency with pertinent land use and transportation control measures contained in the *CAP*. Pertinent measures relate to evaluating impacts according to the BAAQMD's CEQA Guidelines (impact evaluation presented below).

The project's construction-related and operational emissions were determined to not exceed the BAAQMD's CEQA significance thresholds for criteria air pollutants and diesel particulate matter. Therefore, the proposed project's emissions would be consistent with the BAAQMD's *CAP* (the most recently adopted regional air quality plan). The consistency of the proposed project with the most recently adopted regional air quality plan, the *CAP,* is also determined by comparing the project's consistency with the Morgan Hill General Plan. Since the *CAP* is based on population projections of the Association of Bay Area Governments (ABAG) that are based on the City's General Plan in effect at the time the *CAP* was approved, consistency of the project with the General Plan would indicate consistency with the *CAP*. The project would be consistent with the use and density allowed on the project site by the Morgan Hill General Plan, and therefore, the project would be consistent with the *CAP*, a less-than-significant impact.

3b. Air Quality Standards

Regulatory and Planning Framework. The BAAQMD is responsible for attaining and/or maintaining air quality in the San Francisco Bay Area Air Basin (SFBAAB) within Federal and State air quality standards. Specifically, the BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the Basin and to develop and implement strategies to attain the applicable Federal and State standards. In June 2010, the BAAQMD adopted CEQA thresholds of significance and updated its CEQA Air Quality Guidelines, which provides guidance for assessing air quality impacts under CEQA. However, on March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD had complied with CEQA. On August 13, 2013, the California Court of Appeal reversed the Alameda County Superior Court judgment that invalidated the BAAQMD's CEQA thresholds of significance. The Court directed that the Superior Court vacate the writ of mandate issued in March 2012, ordering the BAAQMD to set aside its June 2010 resolution (Res. #2010-06) "Adopting Thresholds for Use in Determining the Significance of Projects' Environmental Effects Under the California Environmental Quality Act." Although the California Supreme Court has granted review in the litigation to hear one particular issue of law, the granting of review does not alter the result in the Court of Appeal, though the latter court's decision is no longer a published, citable precedent. And the legal cloud created by the trial court decision no longer exists. Local agencies such as the City of Morgan Hill may rely on the BAAQMD thresholds.

Significance Thresholds. Exercising its own discretion as lead agency and similar to multiple other San Francisco Bay Area jurisdictions, the city staff has decided to rely on the thresholds within the *Options and Justification Report* (dated October 2009) prepared by the BAAQMD.[2] The BAAQMD *Options and Justification Report* establishes thresholds based on substantial evidence and are consistent with the thresholds outlined within the 2010/2011 BAAQMD CEQA Air Quality Guidelines. The thresholds have been developed by the BAAQMD in order to attain state and national ambient air quality standards.

---

[2] Bay Area Air Quality Management District, 2009. *Revised Draft Options and Justification Report*. October. Available online at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx.

Therefore, projects below these thresholds would not violate an air quality standard and would not contribute substantially to an existing or projected air quality violation:

- NO_X and ROG: 54 pounds/day
- PM_{10}: 82 pounds/day
- $PM_{2.5}$: 54 pounds/day

In addition to establishing the above significance thresholds for criteria pollutant emissions, the BAAQMD, in its *Options and Justification Report,* also recommended the following quantitative thresholds to determine the significance of construction-related and operational emissions of toxic air contaminants from individual project and cumulative sources on cancer and non-cancer health risks:

- Increased cancer risk of >10.0 in a million for individual projects and >100 in a million (from all local sources) for cumulative sources;
- Increased non-cancer risk of >1.0 Hazard Index (Chronic or Acute) for individual projects and >10.0 Hazard Index (from all local sources) for cumulative sources; and
- Ambient $PM_{2.5}$ increase: >0.3 $\mu g/m^3$ annual average for individual projects and >0.8 $\mu g/m^3$ annual average (from all local sources) for cumulative sources.

Project Emissions. The project's construction-related and operational emissions are estimated and compared to the above significance thresholds in **Table 1**. As shown in this table, the project's construction-related and operational air pollutant emissions would not exceed the BAAQMD significance thresholds for criteria pollutants, a less-than-significant impact. However, the BAAQMD recommends that all Basic Construction Mitigation Measures be implemented for all construction projects, whether or not construction-related emissions exceed these significance thresholds. Therefore, the project's construction-related and operational increases in criteria pollutant emissions would be less than significant with implementation of Mitigation Measure AQ-1.

3c. Cumulative Air Quality Impacts

To address cumulative impacts on regional air quality, the BAAQMD has established thresholds of significance for construction-related and operational criteria pollutants and precursor emissions. These thresholds represent the levels at which a project's individual emissions of criteria pollutants and precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. If daily average or annual emissions exceed these thresholds, the project would result in a cumulatively significant impact. Since the project's construction-related and operational criteria pollutant emissions would not exceed BAAQMD significance thresholds (as indicated in Table 1), the project's contribution is considered to be less than cumulatively considerable, and therefore, less than significant.

In addition, when the project's construction-related diesel particulate matter (DPM) emissions are considered with other existing stationary and mobile sources of toxic air contaminants (TACs), the project's contribution to cumulative emissions would not contribute to cumulative construction-related risk and hazard impacts would not be cumulatively considerable, a less-than-significant impact (see Section 3d below for more discussion).

3d. Exposure of Sensitive Receptors

The California Air Resources Board (CARB) regulates vehicle fuels with the intent to reduce emissions. Diesel exhaust is a serious concern throughout California. The CARB identified diesel engine particulate matter as a toxic air contaminant and human carcinogen. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Many of these toxic compounds adhere to the diesel particles, which are very small and can penetrate deeply into the lungs. Diesel engine particulate matter has been identified as a human carcinogen. Mobile sources such as

TABLE 1

PROJECT-RELATED CONSTRUCTION AND OPERATIONAL CRITERIA POLLUTANT EMISSIONS

	Average Daily Emissions (pounds/day)					
Project Activity	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10} (Total)**	**$PM_{2.5}$ (Total)**
Project Construction (Off-Road Equipment Emissions[a])						
– 2017	4.4	49.5	35.8	0.1	9.6	5.4
– 2018	47.0	21.2	17.9	0.0	1.6	1.3
Significance Thresholds	54	54	-	-	82	54
Exceeds Significance Thresholds?	No	No	-	-	No	No
Project Operation						
– Area Source Emissions	18.2	0.7	50.6	0.1	7.4	7.4
– Energy Emissions	0.0	0.2	0.1	0.0	0.0	0.0
– Mobile Source Emissions	0.9	1.9	8.4	0.0	1.3	0.4
Total	**19.1**	**2.8**	**59.1**	**0.1**	**8.7**	**7.8**
Significance Thresholds	54	54	-	-	82	54
Exceeds Significance Thresholds?	No	No	-[b]	-[c]	No	No
	Average Annual Emissions (tons/year)					
Project Activity	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10} (Total)**	**$PM_{2.5}$ (Total)**
Project Construction (Off-Road Equipment Emissions[a])						
– 2017	0.5	3.5	2.8	0.0	0.3	0.3
– 2018	0.9	0.4	0.3	0.0	0.0	0.0
Significance Thresholds	10	10	-	-	15	10
Project Operation						
– Area Source Emissions	0.3	0.0	0.4	0.0	0.0	0.0
– Energy Emissions	0.0	0.0	0.0	0.0	0.0	0.0
– Mobile Source Emissions	0.1	0.4	1.5	0.0	0.2	0.1
– Waste	0.0	0.0	0.0	0.0	0.0	0.0
– Water	0.0	0.0	0.0	0.0	0.0	0.0
Total	**0.4**	**0.4**	**1.8**	**0.0**	**0.2**	**0.1**
Significance Thresholds	10	10	-	-	15	10
Exceeds Significance Thresholds?	No	No	-	-	No	No

NOTES: ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur dioxide; exhaust PM_{10} = particulate matter less than 10 microns; exhaust $PM_{2.5}$ = particulate matter less than 2.5 microns.

[a] Construction assumptions: Demolition would occur over 20 days (100 tons material haul), 1 concrete saw, 1 dozer, 3 loader, backhoes; grading would occur over 30 days (net import of 19,800 cubic yards) using 1 grader, 1 dozer, and 2 loaders/backhoes; construction of 37 homes would occur over 220 work days using 1 crane, 2 forklifts, 1 generator set, 1 loader/backhoe, and 3 welders; and paving would occur over 30 work days (14,295 s.f. asphalt and 4,055 s.f. of concrete) using 1 cement mixer, 1 paver, 2 rollers, and 1 loader/backhoe.

[b] CO: If localized carbon monoxide estimated emissions exceed 550 pounds/day, more detailed analysis is required. Therefore, emissions below this threshold indicate that CO emissions would be less than significant.

[c] SO_2: The SO_2 state and federal standards are currently being met throughout the Bay Area and have been met in recent decades. Therefore, the project's estimated emissions would be less than significant.

SOURCE: CalEEMod Output (see **Attachment 1**)

trucks, buses, and automobiles are some of the primary sources of diesel emissions. Studies show that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections. The cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. Diesel exhaust contains both pulmonary irritants and hazardous compounds that can affect sensitive receptors such as young children, senior citizens, or those susceptible to chronic respiratory disease such as asthma, bronchitis, and emphysema.

In 2005, the CARB approved a regulatory measure to reduce emissions of toxic and criteria pollutants by limiting the idling of new heavy-duty diesel vehicles, which altered five sections of Title 13 of the

California Code of Regulations. The changes relevant to the proposed project are in Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, which limit idling of a vehicle's primary diesel engine for greater than five minutes in any location (with some exceptions) or operation of a diesel-fueled auxiliary power system within 100 feet of residential areas.

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. The CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. Adjacent residences are considered to be the closest sensitive receptors to project construction.

Due to the proximity of sensitive receptors to the project site, a screening-level construction-related health risk analysis was completed for the project and impacts on nearby sensitive receptors from DPM emissions. The results of the health risk screening are summarized in **Table 2**.

TABLE 2

CANCER RISK AND CHRONIC NON-CANCER HEALTH RISKS AT THE CLOSEST SENSITIVE RECEPTORS DUE TO DPM EXPOSURE DURING PROJECT CONSTRUCTION

	$PM_{2.5}$ Exposure, Excess Cancer Risk,[a] and Non-Cancer Chronic Hazard Index from Project Construction Activities at Closest Receptors
Parameter	**Without Mitigation**
Maximum One-Hour $PM_{2.5}$	2.224 $\mu g/m^3$
Annual Average $PM_{2.5}$ (one-hour x 0.1)	0.2224 $\mu g/m^3$
Annual Average $PM_{2.5}$ Significance Threshold	0.3 $\mu g/m^3$
Exceeds Significance Threshold?	No
Age-Weighted Excess Risk for Infants	9.531 in a million
Children	2.859 in a million
Adults	0.953 in a million
Cancer Risk Significance Threshold	Excess Cancer Risk >10 x 10^{-6}
Exceeds Threshold?	No
Chronic/Acute Non-Cancer Hazard Index	0.043/0.250
Chronic Non-Cancer Significance Threshold	Hazard Index >1.0
Exceeds Threshold?	No

NOTES:

[a] The predicted maximum one-hour DPM concentration is 2.224 $\mu g/m^3$ resulting from on-site total project DPM emissions of 0.2015 tons. The hourly to annual scaling factor is 0.1. AERSCREEN output thus indicates that project construction would produce a maximum annual DPM concentration of 0.2224 $\mu g/m^3$.

[b] The excess individual cancer risk factor for DPM exposure is approximately 300 in a million per 1 $\mu g/m^3$ of lifetime exposure (DPM ($\mu g/m^3$) x ASF x 300 x 10^{-6}) / 70 years. More recent research has determined that young children are substantially more sensitive to DPM exposure risk. If exposure occurs in the first several years of life, an age sensitivity factor (ASF) of 10 should be applied. For toddlers though mid-teens, the ASF is 3.

SOURCES: A screening-level individual cancer analysis was conducted to determine the maximum PM2.5 concentration from diesel exhaust. This concentration was combined with the DPM exposure unit risk factor to calculate the inhalation cancer risk from project-related construction activities at the closest sensitive receptor. The EPA AERSCREEN air dispersion model was used to evaluate concentrations of DPM and PM2.5 from diesel exhaust. The AERSCREEN model was developed to provide an easy to use method of obtaining pollutant concentration estimates and is a single source Gaussian plume model which provides a maximum one-hour ground-level concentration. The model output for this analysis is included in the **Attachment 2** of this report.

Operation of the proposed residential use would not generate toxic air contaminants (TACs) that would pose a health risks to adjacent or nearby uses. However, during project construction, combustion

emissions from operation of off-road construction equipment on the project site would be generated and could expose adjacent and nearby receptors to diesel particulate matter (DPM) and other toxic air contaminants (TACs) that are associated with various health risk factors.

As indicated in this table, the project's construction- related DPM emissions would not exceed BAAQMD significance thresholds for cancer and non-cancer health risks for infants (up to 2 years in age), which have the highest age sensitivity factor (ASF). Therefore, the project's construction-related DPM emissions would result in a temporary, less-than-significant health risk to infants and no mitigation would be required.

In addition to the above construction-related risk and hazard impacts, sensitive receptors in the project vicinity would be exposed to cumulative risk and hazard impacts from the project's construction-related emissions in combination with existing stationary and mobile sources within approximately 1,000 feet of the project area. Therefore, in addition to project construction, possible local stationary or vehicular source emissions must be added to this concentration to determine the cumulative total. Specifically, the BAAQMD requires that existing stationary and mobile emissions sources (i.e. freeways or roadways with more than 10,000 vehicles per day) within 1,000 feet of the project area also be considered. Any potential cumulative health risk would, therefore, derive from project activities plus any existing identified risk sources within the project vicinity. According to BAAQMD records, there are two permitted sources within 1,000 feet of the project site and one roadway with average daily traffic volumes exceeding 10,000.

As shown in **Table 3**, when emissions from these existing sources are added to project emissions,

TABLE 3
CUMULATIVE RISK AND HAZARD IMPACTS

Existing Permitted Stationary Sources

Site #	Facility Name	Street Address	City	Distance	Excess Cancer Risk[a]	Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ ($\mu g/m^3$)
7309	Creekside Plaza Cleaners	16145B Monterey Rd.	Morgan Hill	500 feet	7.49	0.020	0.00	0.00
5149	F&F Steel & Stairway	1775 Monterey Rd.	Morgan Hill	850 feet	0.76	0.002	0.00	0.00
			Total – Stationary Sources		8.25	0.022	0.00	0.00

Existing Mobile Sources

Direction	Roadways with ADT of >10,000	Distance[b]	ADT	Excess Cancer Risk[c]	$PM_{2.5}$ ($\mu g/m^3$)
N-S	Monterey Rd.	840 feet	21,723	0.83	0.017

Proposed Project Sources (Worst Case)

	Excess Cancer Risk	Chronic Hazard Index	Acute Hazard Index[d]	$PM_{2.5}$ ($\mu g/m^3$)
Total – Project Sources (see Table 2 Above)	9.53	0.44	0.259	0.222
Total – Maximum Cumulative Risk	18.61	0.066	0.259	0.239
Cumulative Significance Thresholds	100	1	1	0.8
Exceeds Threshold?	No	No	No	No

NOTES:
[a] Cancer cases in a million regulatory
[b] Distance to Maximally-Exposed Individual, which is on Calle Sueño (to the west).
[c] Interpolated for this site-specific distance and ADT.
[d] Based upon the ratio of speciated organic gases to DPM in diesel exhaust relative to peak 1-hour concentrations.
SOURCE: BAAQMD Roadway Screening Analysis Calculator, April 16, 2015. Available online at http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools.

cumulative emissions would not exceed the cumulative significance thresholds for risk and hazard impacts at new sensitive receptors or the MEI. Therefore, the project's contribution to cumulative construction-related risk and hazard impacts would be less than cumulatively considerable, a less-than-significant impact.

3e. Odors

According to the BAAQMD CEQA Guidelines, land uses associated with odor complaints typically include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. The project would not include any uses identified by the BAAQMD as being associated with odors. No new or unusual sources of nuisance odors would be associated with the proposed residence. Therefore, the project's potential for nuisance odor problems would be less than significant.

During project construction, however, nuisance diesel odors associated with operation of diesel construction equipment on-site (primarily during initial grading phases), but this effect would be localized, sporadic, and short-term in nature. Therefore, temporary impacts from nuisance diesel odors on adjacent residential receptors would be less than significant.

Mitigation Measures – Air Quality (AQ)

Although the project's construction-related air pollutant emissions would not exceed the BAAQMD's applicable significance thresholds, the following measures are recommended by the BAAQMD to reduce the project's construction emissions:

***AQ-1**: **Basic Construction Measures.** To limit the project's construction-related dust and criteria pollutant emissions, the following BAAQMD-recommended Basic Construction Mitigation Measures shall be included in the project's grading plan, building plans, and contract specifications:*

- *a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.*
- *b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.*
- *c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.*
- *d. All vehicle speeds on unpaved roads shall be limited to 15 mph.*
- *e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.*
- *f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.*
- *g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.*
- *h. Post a publicly visible sign with the telephone number and person to contact at the City regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.*

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4. Biological Resources - Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

4a, 4b, 4d. Special-Status Species, Sensitive Natural Communities and Wetlands, Fish and Wildlife Movement, Corridors, Nursery Sites

The following discussion of biological resources on the project site derives from several site surveys and associated studies prepared by Live Oak Associates in 2011; Moki Smith, arborist, in 2013; and Mosaic Associates, LLC in 2015. Background reports prepared for the proposed project include: a biological constraints analysis, arborist study, wetlands delineation report and map, and peer review report to assess the relevance of past biological studies. The results of these analyses are presented below.

Plant Communities and Wildlife Habitats. The project site supports non-native grasses and ruderal herbaceous weeds, typical of urban areas. During the field reconnaissances of the site, it was noted that the fields had been disced regularly and that the predominant vegetation on the site reflected these maintenance operations. The disced fields were dominated by typical upland species such ripgut brome (*Bromus diandrus*) and wild oats (*Avena fatua*). A wetland swale and small wetland in the southwest corner of the site were dominated by species such as Mediterranean barley (*Hordeum marinum*), Italian rye grass (*Lolium multiflorum*), and curly dock (*Rumex crispus*). Little Llagas Creek supported wetland vegetation within the channel with a few scattered trees and shrubs along its banks. The only other trees and shrubs onsite occur along the project boundaries with one large valley oak (*Quercus lobata*) within the field in eastern portion of the site.

A tree report for the project site was prepared by Morgan Hill Tree Service[3] and is included as **Attachment 3** in this study. The report identifies trees present on site, including coast live oak *(Quercus agrifolia)* and valley oak *(Quercus lobata)*. In addition, the tree report describes the conditions of the trees on the site and makes recommendations concerning the disposition of identified trees. The report notes that there are six of each oak tree type on the project site in generally fair condition and recommends preservation of ten of the 12 trees, and the removal of two valley oaks.
A number of locally occurring wildlife species may occur on the project site. Due to the relatively small size of the site, the urban development within the vicinity of the site, the lack of connecting habitat, and the disturbed nature of the site, the species discussed below would not be expected to utilize the site regularly or for extended periods.

West Little Llagas Creek provides movement and foraging habitat for several species of fish including the Sacramento sucker (*Catostomus occidentalis occidentalis*), sacramento pikeminnow (*Ptychocheilus grandis*), and mosquitofish (*Gambusia affinis*).

Several amphibian and reptilian species could onsite, particularly in Little Llagas Creek. The creek provides breeding habitat for species such as pacific treefrogs (*Hyla regilla*), western toads (*Bufo boreas halophilus*), and garter snakes (*Thamnophis* sp.). Western fence lizards (*Sceloporus occidentalis*), southern alligator lizards (*Gerrhonotus multicarinatus*), and gopher snakes (*Pituophis melanoleucus*) may also occur along the banks of the creek and within the upland field of the site.

Avian species expected to occur onsite include the American crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), rock pigeon (*Columba livia*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), western scrub-jay (*Aphelocoma californica*), northern mockingbird (*Mimus polyglottos*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), dark-eyed junco (*Junco hyemalis*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). The large trees of the site provide suitable breeding habitat for the above avian species as well as raptors such as the red-tail hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and Cooper's hawk (*Accipiter cooperi*).

Mammalian species that may occur onsite include the Virginia opossum (*Didelphis virginiana*), California meadow vole (*Microtus californicus*), western harvest mouse (*Reithrodontomys megalotis*), Botta's pocket gopher (*Thomomys bottae*), ornate shrew (*Sorex ornatus*), raccoon (*Procyon lotor*), house cat (*Felis catus*), and dog (*Canis familiaris*).

Special-status Species. Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. State and federal laws have provided the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFG. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened or endangered (CNPS 2011). Collectively, these plants and animals are referred to as "special status species."

[3] Morgan Hill Tree Service, 2013. Tree Report for Property at Monterey Rd. & Watsonville Rd., September 25.

Several special status plants and animals occur in the vicinity of the study area. A search of published accounts for all relevant special status plant and animal species was conducted for the Mt. Madonna USGS 7.5-minute quadrangle in which the project site occurs and for the eight surrounding quadrangles (Chittenden, Watsonville East, Loma Prieta, Santa Teresa Hills, Watsonville West, Gilroy, Mt. Sizer, and Morgan Hill) using the California Natural Diversity Data Base (CNDDB), Rarefind (CDFG 2011). Other sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner 1988), *Endangered and Threatened Wildlife and Plants* (USFWS 2011), *Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants* (CDFG 2011), and *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2011).

Plant Species. Approximately 40 special status vascular plant species are known to occur in the general project vicinity (CDFG 2011). All would be expected to be absent to occur onsite due to the level of site disturbance, the lack of suitable habitat, and the low chances of dispersal to the site from source populations due to the lack of habitat connectivity. Therefore, state and federal laws protecting special status plants would not be relevant to development of the site.

Animal Species. Approximately 25 special status animal species occur, or once occurred, regionally (CDFG 2011). Of these, all but two are considered to be either absent or unlikely to occur on the site due to the unsuitability of habitat for these species. For example, the site is not considered suitable for sensitive amphibian and reptile species such as the California tiger salamander (*Ambystoma californiense*) due to the lack of suitable aquatic habitat. Little Llagas Creek is not suitable for this breeding, the onsite seasonal wetlands do not appear to support water for a sufficient length of time (approximately three months) to support breeding, and the site is isolated from nearby populations due to the surrounding existing development, making the site unsuitable for estivation.

Special status species that may occur onsite include the white-tailed kite (*Elanus leucurus*) and burrowing owl (*Athene cunicularia*). Neither of these species was observed onsite during the April 2011 survey; however, both of these species are volant and have been known to occur within in the site vicinity thereby making it possible for individuals to use the site in the future. In addition to special status species, non-special status species avian species protected under the Migratory Bird Treaty Act could potentially breed onsite or in the immediate vicinity.

White-tailed Kite, Non-listed Raptors, and Other Non-listed Breeding Birds: The onsite trees provide suitable breeding habitat for a number of bird species. Site development during the breeding bird season (February 1 through August 31) could result in the abandonment of an active nest. The mortality of individuals that may result would constitute a significant adverse impact of the project; the loss of habitat would not constitute a significant adverse impact. The following mitigation measures would likely be warranted to ensure breeding birds are not harmed, injured, or killed as a result of a future project. As standard conditions of approval, should project construction be scheduled to commence between February 1 and August 31, the City will require a pre-construction survey to be conducted by a qualified biologist for nesting birds within the onsite trees as well as all trees within 250 feet of the site. This survey would occur within 30 days of the on-set of construction. If pre-construction surveys undertaken during the nesting season locate active bird nests within or near construction zones, these nests, and an appropriate buffer around them (as determined by a qualified biologist) would remain off-limits to construction until the nesting season is over.

A pre-construction survey as described in the biological constraints assessment should be conducted as a Standard Condition of Approval and avoidance measures implemented if active nests are observed. However, the window of time between the survey and the start of construction should be narrowed to

seven days rather than 30 days. Nests can be constructed and occupied in less than 30 days, and requiring conduct of the survey to be more closely scheduled to the start of construction would help ensure that active nests would not be disturbed during construction.

Burrowing Owl: If ground squirrels reestablish onsite following the recent discing, suitable habitat would be present for burrowing owls. Site development could potentially result in the mortality of burrowing owls if they move onto the site in the future. The following mitigation measures would likely be warranted to ensure burrowing owls are not harmed, injured, or killed as a result of a future project.

As Standard Conditions of project approval, the City will require a pre-construction survey conducted by a qualified biologist for burrowing owls within 30 days of the on-set of construction. This survey would be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 1995), the Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (1997), and the City of Morgan Hill's *Citywide Burrowing Owl Habitat Mitigation Plan* (June 2003). All suitable habitats of the study area would be covered during this survey. If pre-construction surveys undertaken during the burrowing owl breeding season (February 1 through August 31) locate active nest burrows within or near construction zones, these nests, and an appropriate buffer around them (as determined by a qualified biologist) would remain off-limits to construction until the breeding season is over. During the burrowing owl nonbreeding season (September 1 through January 31), resident owls may be relocated to alternative habitat. The relocation of resident owls must be according to a relocation plan prepared by a qualified biologist. Passive relocation would be the preferred method of relocation. This plan must provide for the owl's relocation to nearby lands possessing available nesting and foraging habitat.

4c. Federally Protected Wetlands Defined by Section 404 of the Clean Water Act

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Game (CDFG), and the California Regional Water Quality Control Board (RWQCB). Little Llagas Creek is considered a Water of the U.S. and State falling under the jurisdiction of the USACE, CDFG, and RWQCB.

Waters of the U.S. and State falling under the jurisdiction of the USACE, RWQCB, and CDFG occur on-site in the form of Little Llagas Creek. A wetland delineation for the project site was prepared by Live Oak Associates in 2011 and a jurisdictional determination was made by the USACE in 2012. The 2012 jurisdictional determination is effective for a period of five years. Jurisdictional wetlands on the project site are present in the realigned Little Llagas Creek, and in the wetland swale to the west of the creek. The wetland swale is likely the former channel or a tributary to Little Llagas Creek. **Table 4** shows the jurisdictional wetlands that are present on site as shown on the jurisdictional determination map of 1/19/2012. The proposed residential development has been redesigned to avoid both the creek and the wetland swale on the project site through the limitation of residential development to the eastern portion of the project site. However, the proposed project would also include off-site improvements for the widening of Watsonville Road. The proposed project includes the widening and partial repaving of Watsonville Road from its intersection with Monterey Road westward to the intersection with Calle Sueno. The widening near Monterey Road would include demolition of parts of the roadway, an extension of a box culvert, grading of West Little Llagas Creek banks, relocation of catch basins and storm drains, relocation of utilities, partial demolition of a berm, and relocation of rip-rap rock for the extended culvert. Reviews conducted by Live Oak Associates and Mosaic Associates of the proposed creek embankment modifications concluded that no special-status plant or animal species would be

affected by the alterations proposed for the road widening. Since the proposed road improvements would result in temporary and permanent impacts to jurisdictional wetlands, regulatory permits or compensatory mitigation would most likely be required for construction activities associated with the road widening, and the permitting described in the Biological Constraints Letter prepared by Live Oak Associates would be required.

TABLE 4

JURISDICTIONAL WETLANDS ON THE MONTEREY-YOUNG PROPERTY

Feature	Area (ac)/ Length (linear feet)	Notes
Wetland seasonal channel	0.285 ac/766 LF	Little Llagas Creek channel. Man-made earthen swale supporting seasonal wetland vegetation. Seasonal flows.
Wetland swale	0.112 ac/278 LF	Unincised and faint swale that drains towards Little Llagas Creek. This swale may represent the historic location of Little Llagas Creek or a tributary channel.
Total Area	**0.397 ac/1,064 LF**	

4e. Tree and Biological Protection Ordinances

The City of Morgan Hill recognizes the importance of trees to the community and has established policies and guidelines for the preservation of native plants in the City's Open Space and Conservation Element of the General Plan. Specifically, Goal 6 and Policy 6c of the Element state:

- Goal 6. Protection of native plants and animals
- 6c. Preserve outstanding natural features, such as the skyline of a prominent hill, rock outcroppings, and native and/or historically significant trees.

These guidelines are implemented through Chapter 12.32 of the City Municipal Code, Restrictions on Removal of Significant Trees. Section 12.32.020 of the Code defines the type of plant that qualifies as a "tree" and the legal protection afforded to such resources. The section establishes the following definition:

> 12.32.020 - Definitions. G. "Tree" means any live woody plant rising above the ground with a single stem or trunk of a circumference of forty inches or more for nonindigenous species and eighteen inches or more for indigenous species measured at four and one-half feet vertically above the ground or immediately below the lowest branch, whichever is lower, and having the inherent capacity of naturally producing one main axis continuing to grow more vigorously than the lateral axes. All commercial tree farms, *nonindigenous tree species in residential zones and orchards (including individual fruit trees) are exempted from the definition of tree for the purpose of this chapter*. Trees of any size within the public right-of-way shall constitute a tree for the purposes of this subsection.

Based upon this definition, 12 of the trees on the project site would qualify for protection under Chapter 12.32 of the City's Municipal Code and a permit would be required for the removal of these trees. The arborist's report recommends the removal of two valley oaks and the preservation of the 10 coast live oaks, and implementation of appropriate remediation as a condition of project approval.

In addition to the tree survey conducted by the project arborist in 2013, Mosaic Associates, LLC surveyed the project site for trees to determine whether there have been changes in tree cover since the 2013 tree survey. The 2015 survey indicated that in addition to the 12 trees described in the Arborist Letter, there are a number of riparian trees along Little Llagas Creek and situated around the periphery of the project site. A total of an additional 20 trees were tallied and they are described in **Attachment 4**. These trees were not described in the Arborist Report because they may not be classified as a "Tree" or "Indigenous Tree" by the City of Morgan Hill Municipal Code, Section 12.32.030.

A number of willows (*Salix* sp.) and a single Fremont's cottonwood (*Populus fremontii*) are present along Little Llagas Creek. These trees provide cover and nesting habitat for a number of locally occurring avian species. In addition to these trees, several coyote bush (*Baccharis pilularis*) and mulefat (*Baccharis salicifolia*) are present along the banks of the creek, providing additional cover and structural diversity to the heavily altered project site. These trees and shrubs are all native to the region.

Additional trees are also present along the periphery of the site. Most of them are relatively small black walnuts (*Juglans nigra*), remnants of the old orchard that was present on site in the past. Three large stature Fremont's cottonwoods were present along the northwest property boundary.

While none of the trees and shrubs along Little Llagas Creek are proposed to be removed, some of the trees along the periphery of the site would be removed in order to construct the proposed project. A City of Morgan Hill tree removal permit would be required for the removal of "Trees" and "Indigenous Trees", and tree mitigation requirements may be imposed. Removal of the black walnuts would be exempt from the City's tree removal permit requirements because orchard trees are not classified as "Trees" under the municipal code. If removal of the Fremont's cottonwoods in the northwest corner of the site is required for development, a tree removal permit may be required. These trees are native to the Morgan Hill region, even though this species is not specifically listed as an "Indigenous Tree" in Section 12.32.020 of the municipal code.

Removal of any of the trees on site could result in adverse impacts to nesting birds. A pre-construction survey for white-tailed kite (*Elanus leucurus*), non-listed raptors and other non-listed breeding birds would be required by the City as a Standard Condition of project approval to avoid potentially significant impacts to nesting birds.

4f. Habitat Conservation Plans

The Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan (Habitat Plan) has been developed to preserve the ecosystems of the majority of the central and southern portion of Santa Clara County. The Plan Area encompasses lands within Santa Clara County including the central portion of the Santa Clara Valley, portions of the Santa Cruz Mountains to the west, portions of the Diablo Range to the east the Coyote watershed, portions of the Pajaro watershed, and a significant portion of the Guadalupe watershed. The purpose of the Habitat Plan is to conserve and prevent further endangerment of the plant and animal species that are dependent upon those ecosystems and to comply with federal and state legal requirements for such preservation.

The Habitat Plan is a regional partnership between six Local Partners (the County of Santa Clara, Santa Clara Valley Transportation Authority, Santa Clara Valley Water District, and the Cities of San Jose, Gilroy, and Morgan Hill) and two Wildlife Agencies (the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service). The Habitat Plan provides a framework for promoting the protection and recovery of natural resources, including endangered species. It also aims to streamline the permitting process for planned development, infrastructure, and maintenance activities.

The City of Morgan Hill adopted Ordinance No. 2057 and added Chapter 18.69 to its Land Use regulations, implementing the provisions of the Habitat Plan to address the need for the conservation and protection of natural resources within the community and county. As a result of the adoption of the

Habitat Plan by the City, the City (among the other Local Partners) is the recipient of long-term endangered species permits/authorized Take coverage from the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife for the City's own activities. In addition to coverage of its own public projects, the City is able to extend authorized Take coverage to private Project Applicants under its jurisdiction.

Rather than separately permitting and mitigating individual projects the Habitat Plan evaluates natural resource impacts and mitigation requirements comprehensively in a manner that is more efficient and effective for at-risk species and their essential habitats. This approach allows the City to streamline mitigation requirements into one comprehensive program. The Take coverage authorized by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) also provides assurances that no further commitments of funds, land, or water will be required to address impacts on Covered Species beyond that described in the Habitat Plan to address changed circumstances as long as the Habitat Plan is properly implemented.

All Project Applicants for Covered Activities within the Local Plan Area need to comply with the conditions on Covered Activities listed in Chapter 6 of the Habitat Plan. Each Planning Permit application (or Building Permit application where no Planning Permit is required) for a Covered Activity in the Local Plan Area shall include details of the methods and timing in which the project will comply with the Habitat Plan in the form and manner required by the Community Development Director (or any successor officer). Applicable conditions on Covered Activities from Chapter 6 of the Habitat Plan as well as other measures required to implement the conservation strategy of the Habitat Plan will be included in each Planning Permit (or Building Permit where no Planning Permit is required) approval for a Covered Activity.

Under the Habitat Plan, the Project is considered a private development activity occurring in an area identified as "Urban Development Equal or Greater Than 2 Acres", therefore is covered as a Project under the Habitat Plan. The Habitat Plan assumes a certain amount of urban development within the City of Morgan Hill and Habitat Plan area, which have both permanent, direct impacts and indirect impacts. The private development activity will permanently alter the land which is considered a direct impact. The Habitat Plan has classified the project's site land cover type as "Grain, Row-crop, Hay and Pasture, Disked/Short-term fallowed" and which has been verified by City of Morgan Hill Planning staff and will be assessed Fee Zone B - Agricultural and Valley Floor Lands as mitigation because this area is supportive of natural communities types and species covered in the Habitat Plan. The project will also be assessed Wetland Fee depending on the amount the project encroaches into Little Llagas Creek . The project is not within a planned Priority Reserve Area or within an Urban Reserve System Interface Zone.

The Habitat Plan also considers covered activities to result in a certain amount of indirect impacts from urban development mostly in the form of increased impervious surface and from the effects of nitrogen deposition. Urban development results in increased air pollutant emissions from passenger and commercial vehicles and other industrial and nonindustrial sources. Emissions from these sources are known to increase airborne nitrogen, of which a certain amount is converted into forms that can fall to earth as depositional nitrogen. It has been shown that increased nitrogen in serpentine soils can favor the growth of nonnative annual grasses over native serpentine species and these nonnative species, if left unmanaged, can overtake the native serpentine species, which are host plants for larval Bay checkerspot butterfly. As such, all projects within the Habitat Plan area are subject to paying a "Nitrogen Deposition Impact Fee" which will be calculated based on the number of daily vehicle trips attributed to the activity and collected prior to the commencement of the use.

Upon payment in full of the Mitigation Fees and approval of Planning or Building Permits incorporating all applicable HCP conditions of approval, the Project Applicant will receive authorized Take coverage

for the Covered Activity in accordance with the terms of the HCP, the Implementing Agreement, and the Take Permits.

Mitigation Measures – Biological Resources (BIO)

To minimize potential impacts on biological resources that could occur during site preparation and project demolition and construction, the following measures shall be implemented. Implementation of the measure provided below would reduce the project's potential biological resource impacts to a less-than-significant level:

BIO-1: ***Pre-construction Survey for White-tailed Kite, Non-listed Raptors, and Other Non-listed Breeding Birds.*** *After project approval, and prior to any activity that alters or disrupts surface soils on the site, pre-construction surveys for nesting birds shall be conducted by a qualified biologist not more than seven (7) days prior to site disturbance during the breeding season (February 1 through August 31). If site disturbance commences outside the nesting season, pre-construction surveys for nesting birds are not required. If active nests of raptors and other migratory birds are not detected within approximately 250 feet of the project site, no further mitigation is required.*

If nesting raptors or other migratory birds are detected on or adjacent to the site during the survey, a suitable construction-free buffer should be established around all active nests. The dimensions of the buffer (up to 250 feet) should be determined at that time and may vary depending on location and species. The buffer areas should be enclosed with temporary fencing, and construction equipment and workers should not enter the enclosed setback areas. Buffers should remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents.

BIO-2: ***Pre-construction Survey for Burrowing Owls.*** *After project approval, and prior to any activity that alters or disrupts surface soils on the site, a pre-construction survey conducted by a qualified biologist for burrowing owls within 30 days of the on-set of construction. This survey would be conducted according to methods described in the Staff Report on Burrowing Owl Mitigation (CDFG 1995), the Burrowing Owl Consortium's Burrowing Owl Survey Protocol and Mitigation Guidelines (1997), and the City of Morgan Hill's Citywide Burrowing Owl Habitat Mitigation Plan (June 2003). All suitable habitats of the study area would be covered during this survey.*

If pre-construction surveys undertaken during the burrowing owl breeding season (February 1 through August 31) locate active nest burrows within or near construction zones, these nests, and an appropriate buffer around them (as determined by a qualified biologist) would remain off-limits to construction until the breeding season is over. During the burrowing owl nonbreeding season (September 1 through January 31), resident owls may be relocated to alternative habitat. The relocation of resident owls must be according to a relocation plan prepared by a qualified biologist. Passive relocation would be the preferred method of relocation. This plan must provide for the owl's relocation to nearby lands possessing available nesting and foraging habitat.

BIO-3: ***Tree Replacement.*** *Trees along the periphery of the site would be removed in order to construct the proposed project and City tree removal permits would be required for the removal of "Trees" and "Indigenous Trees," as defined by City Municipal Code. The City will require the applicant to replace removed trees at a minimum 2:1 ratio with native tree species that have a similar sized canopy at maturity, and with a minimum box size of 24 inches.*

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
5. Cultural Resources - Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

5a. Historical Resources

The project site is currently vacant and there are no structures on the site. Therefore, project implementation would have no impact on historical resources.

5b, 5d. Archaeological Resources and Human Remains

An archaeological literature review for the project site was performed by Holman & Associates on April 20, 2015. The results of the literature review indicated that there are no recorded historic or prehistoric resources on the project site or within 1,000 feet of it. There have been a number of formal archaeological studies done in the general vicinity, three of which covered portions of the project area. However, no archaeological resources were discovered in the project area during these surveys, but one study concluded that there was a potential for buried archaeological resources, in part, due to the presence of the channelized West Little Llagas Creek. Therefore, the project area is considered to have a moderate to high potential for containing prehistoric archaeological resources. The current channelized route of Little Llagas Creek across the project site is most likely in close proximity to the prehistoric course(s) of this creek. Given that riparian zones of creeks were a favorite location for village and temporary camp sites, it is possible that prehistoric archaeological materials could be discovered as a result of proposed construction-related earthmoving activities on the site, a potentially significant impact.

The proposed project would also be subject to the provisions of City of Morgan Hill Municipal Code Section 18.75.110. This section specifies that if a project is located within or adjacent to a known archaeological site, then a CEQA review of the project shall consider potentially significant impacts on archaeological resources and identify appropriate mitigation measures to be imposed as conditions of approval in addition to the standard conditions identified in subsection B of Section 18.75.110. Subsection B stipulates that if the project is not located within or adjacent to a known archaeological site, then the project applicant has the option to complete an archaeological survey of the property to determine the appropriate mitigation to be used as conditions of project approval or comply with the standard conditions of approval which shall be conclusively deemed to reduce potentially significant impacts to less-than-significant levels.

As standard conditions of approval, the City will require monitoring of ground-disturbing activities for archaeological resources and the reporting of appropriate treatment and disposition of such resources that may be uncovered. In the event that undocumented human remains or unknown significant historic or archaeological resources are discovered, subsection B.2. of Section 18.75.110 provides a specific protocol for the treatment of the uncovered human remains and/or resources. The protocol entails the process of identifying the human remains and the contact of appropriate parties such as the Native American

Heritage Commission and the Amah Mutsun Tribal Band to determine Most Likely Descendant for further consultation on the disposition of the remains. The City's standard conditions of approval in conjunction with Mitigation Measure CUL-1 would reduce potentially significant impacts on archaeological resources to a less-than-significant level.

5c. Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and marine coral), and fossils of microscopic plants and animals (microfossils). The age and abundance of fossils depend on the location, topographic setting, and particular geologic formation in which they are found. Fossil discoveries not only provide a historic record of past plant and animal life, but may assist geologists in dating rock formations. A review of records maintained by the University of California Museum of Paleontology in Berkeley indicates that the closest paleontological resources recorded in Santa Clara County occur approximately six miles north of Morgan Hill. These resources were discovered in geologic strata dating from the Pleistocene epoch of the Quaternary Period (2.6 million to 11,700 years ago).

Geologic mapping for the proposed project indicates the site is underlain by Eugeosynclinal deposits of the Mesozoic Era (252 to 66 million years ago and primarily represented by the Francisco Formation or assemblage in the coastal region). These deposits are much older than those containing the recorded paleontological resources, and therefore, the potential for encountering paleontological resources at the project site is considered to be low. However, there remains the potential to unearth unknown paleontological resources at the project site. In the event that such resources are uncovered, the standard conditions of approval for the mitigation of archaeological resource discovery will be applied to paleontological resources. Consequently, the project impacts on paleontological resources would be less than significant.

Mitigation Measures – Cultural Resources (CUL)

The City will require monitoring of ground disturbing activities for archaeological resources and reporting of uncovered resources. The following measure will ensure that potentially significant effects upon cultural resources would be reduced to less than significant levels:

CUL-1**:* ***Disposition of Cultural Resources. *The discovery of undocumented human remains or unknown significant historic or archaeological resources would be evaluated according to the City's specific protocol for the treatment of the uncovered human remains and/or resources. The protocol entails the process of identifying the human remains and the contact of appropriate parties, such as the Native American Heritage Commission and the Amah Mutsun Tribal Band, to determine Most Likely Descendant for further consultation on the disposition of the remains. The disposition of the discovered human remains would be conducted in consultation with appropriate parties as identified by the City.*

The following condition shall be placed on all improvement plans, building plans, and grading plans and shall be implemented as necessary:

In the event that known or suspected Native American remains are encountered or significant historic or archaeological materials are discovered, the following measures will be implemented:

a. Ground - disturbing activities shall be immediately stopped if suspected Native American remains and/or significant historic or archaeological materials are discovered. Examples of significant historic or archaeological materials include, but are not limited to, concentrations of historic artifacts (e.g., bottle s, ceramics) or prehistoric artifacts (chipped chert or obsidian, arrow points, groundstone mortars and pestles), culturally

altered ash - stained midden soils associated with pre - contact Native American habitation sites, concentrations of fire - altered rock and/or burned or charred organic materials, and historic structure remains such as stone - lined building foundations, wells or privy pits. Ground - disturbing project activities may continue in other areas that are outside the discovery locale.

b. An "exclusion zone" where unauthorized equipment and personnel are not permitted shall be established (e.g., taped off) around the discovery area plus a reasonable buffer zone by the Contractor Foreman or authorized representative, or party who made the discovery and initiated these protocols, or if on - site at the time or discovery, by the Monitoring Archaeologist (typically 25 - 50 ft. for single burial or archaeological find).

c. The discovery locale shall be secured (e.g., 24 hour surveillance) as directed by the City or County if considered prudent to avoid further disturbances.

d. The Contractor Foreman or authorized representative, or party who made the discovery and initiated these protocols shall be responsible for immediately contacting by telephone the parties listed below to report the find and initiate the consultation process for treatment and disposition: 1) the City of Morgan Hill Community Development Director; 2) the Contractor's Point(s) of Contact; 3) The Coroner of the County of Santa Clara (if human remain s found); 4) The Native American Heritage Commission (NAHC) in Sacramento; and 5) The Amah Mutsun Tribal Band.

e. If human remains are discovered, t he Coroner has two working days to examine the remains after being notified of the discovery. If the remains are Native American the Coroner has 24 hours to notify the NAHC. The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD) from the Amah Mutsun Tribal Band. (Note: NAHC policy holds that the Native American Monitor will not be designated the MLD.)

f. Within 24 hours of their notification by the NAHC, the MLD will be granted permission to inspect the discovery site if they so choose. Within 24 hours of their notification by the NAHC, the MLD may recommend to the City's Community Development Director the recommended means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The recommendation may include the scientific removal and non - destructive or destructive analysis of human remains and items associated with Native American burials. Only those osteological analyses or DNA analyses recommended by the Amah Mutsun Tribal Band may be considered and carried out.

g. If the MLD recommendation is rejected by the City of Morgan Hill the parties will attempt to mediate the disagreement with the NAHC. If mediation fails then the remains and all associated grave offerings shall be reburied with appropriate dignity on the property in a location not subject to further subsurface disturbance.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
6. Geology and Soils - Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

The project site is underlain by alluvial gravel, sand, and clay.[4] Three soil types are mapped on the project site: Arbuckle gravelly loam, San Ysidro loam, and Zamora clay loam. These soils are alluvial soils formed from conglomerate, metasedimentary, and sedimentary rocks. These soils are deep and well-drained to moderately well-drained.[5] Based on the drilling logs collected as part of the Phase II Subsurface Investigation,[6] shallow soils beneath the site consist primarily of silty sand from near surface to at least 2 feet below grade, then silty clay from 2 feet below grade to at least 2.5 feet below grade, the deepest interval explored by drilling.

6a. Seismic Hazards and Landslides

Fault Rupture. The project site is not located within an Alquist-Priolo Earthquake Fault Zone[7] and based on mapping of geologic hazards by Santa Clara County, the proposed project site is not crossed by any

---

[4] Diblee, T.W. and Minch, J.A., 2005. *Geologic Map of the Mt. Madonna Quadrangle, Santa Clara and Santa Cruz Counties, California. Dibblee Foundation Map DF-168.* Available online at http://ngmdb.usgs.gov/Prodesc/proddesc_73806.htm

[5] Live Oak Associates, Inc., 2011. Biological Constraints Letter for the Watsonville Road/Monterey Highway Property in the City of Morgan Hill, Santa Clara County, California (PN 1523-01). September 6.

[6] Hillmann Consulting, LLC, 2013. *Phase II Subsurface Investigation Report. APN 76723030, Morgan Hill, CA.* October 4.

[7] California Division of Mines and Geology, 1982. State of California Special Studies Zones, Morgan Hill, Revised Official Map. January 1. Available online at http://gmw.consrv.ca.gov/shmp/download/quad/MOUNT_MADONNA/maps/MT_MDNA.PDF

active fault zones and the closest fault rupture hazard zone is nearly three miles to the northeast.[8] Therefore, impacts related to the potential for fault rupture would be less than significant.

Groundshaking. Ground shaking is the cause of most damage during earthquakes and an earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site, similar to that which has occurred in the past. The three faults that would most likely produce strong groundshaking at the project site include the San Andreas Fault located about 9 miles to the southwest, the Calaveras Fault located approximately 4 miles to the northeast, and the Sargent Fault located approximately 6 miles to the southwest.[9]

The Association of Bay Area Governments has estimated the degree of groundshaking that could occur in the San Francisco Bay area on a regional basis and estimates that the project area would experience strong ground shaking in the event of an earthquake on one of the regional faults.[10] To resist seismic forces, the proposed residences would need to be constructed using the appropriate seismic design criteria specified in the California Building Code (CBC). The criteria are determined on the basis of soil type, the magnitude of the controlling seismic event, slip rate of the nearest fault, and distance to the nearest active fault. The structural design for the proposed homes will be based on Chapter 16 of the 2013 CBC.

Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead and live loads. Therefore, structures designed in accordance with the CBC should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. While conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake, it is reasonable to expect that a well-designed and well-constructed structure would not collapse or cause loss of life in a major earthquake.

As a Standard Condition of Approval, the applicant will be required to prepare a soils (geotechnical) engineering report and this report will specify structural design criteria for project improvements. As part of its review, the Building Division of the City of Morgan Hill will review the planned design to confirm compliance with the CBC. Because compliance with the CBC, subject to approval as part of the building permit review process, should ensure that the buildings constructed under the proposed project do not collapse or cause loss of life in a major earthquake, impacts related to groundshaking would be less than significant.

Liquefaction. Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary, but essentially total, loss of shear strength because of pore pressure build-up under the reversing cyclic shear stresses associated with earthquakes. The project site is not located within a Santa Clara County Liquefaction Hazard Zone.[11] Therefore, impacts related to liquefaction and related phenomena would be less than significant.

---

[8] The County of Santa Clara, 2012. Santa Clara County Geologic Hazard Zones, Map 53. October 26. Accessed at https://www.sccgov.org/sites/dpd/DocsForms/Documents/GEO_GeohazardATLAS.pdf on November 13, 2015.

[9] U.S. Geological Survey and California Geological Survey, 2006. *Quaternary Fault and Fold Database for the United States*. Accessed at http://earthquake.usgs.gov/hazards/qfaults/map/ on November 13, 2015.

[10] Association of Bay Area Governments, 2013. Earthquake and Hazards Program, Santa Clara County Earthquake Hazard. Accessed at http://quake.abag.ca.gov/earthquakes/santaclara/ on November 13, 2015.

[11] The County of Santa Clara, 2012. Santa Clara County Geologic Hazard Zones, Map 53. October 26. Accessed at https://www.sccgov.org/sites/dpd/DocsForms/Documents/GEO_GeohazardATLAS.pdf on November 13, 2015.

Landslides. The project site is not located within a Santa Clara County Landslide Hazard Zone.[12] Therefore, impacts related to landslides, including seismically induced landslides, would be less than significant.

6b. Erosion Hazards

As indicated on the proposed grading and drainage plan shown in **Figure 7**, proposed earthwork at the site would involve approximately 200 cubic yards (c.y.) of cut and 20,000 c.y. of fill, resulting in a net import of 19,800 c.y. of fill. As indicated in Sections A-A and B-B at the bottom of Figure 7, this fill would be spread over the entire project site (up to about four feet deep) in order to raise site elevations and reduce flood hazards. Without proper soil stabilization controls, such grading activities could increase the potential for soil loss and erosion by wind and stormwater runoff through the removal of stabilizing vegetation and exposure of areas of loose soil. The potential for soil erosion would exist during the construction period when the existing vegetative cover is removed and before new vegetation is established or hardscape is installed. As a Standard Condition of Approval, the project applicant would be required to implement an erosion control plan. The proposed erosion control plan is presented in **Figure 8** and control measures would include use of fiber rolls or silt fences along the perimeter of all proposed private drives, installation of a sediment barrier at the site's principal storm drain inlet (southeast corner of the site), provision of gravel bag check dams on the proposed public street, and hydroseeding of designated areas (mostly along the site's eastern boundary). The erosion control plan also includes measures to control and minimize potential erosion hazards on the embankment where there are proposed improvements related to the widening of Watsonville Road.

In addition, as discussed in Section 9, *Hydrology and Water Quality*, in accordance with Chapter 13.30 of the City of Morgan Hill Municipal Code (Urban Storm Water Quality Management and Discharge Control), the project applicant would be required to comply with the requirements of the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ (Construction General Stormwater Permit) to control erosion during construction. In accordance with this permit, the project sponsor would be required to submit a Notice of Intent and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the Construction General Stormwater Permit. The SWPPP would specify the use of best management practices to restrict soil erosion and the project applicant would also implement erosion and sedimentation controls in accordance with Chapter 13.30 of the municipal code.

With implementation of the City's Standard Condition of Approval to require an erosion control plan in addition to drainage improvements required as part of the SWPPP, potential erosion hazards during construction would be reduced to a less-than-significant level.

6c, 6d, 6e. Geologic Stability and Soil Engineering Constraints

Unstable Geologic Units or Soil. The project site is not located within a Santa Clara County Compressible Soil or Landslide Hazard Zone[13] indicating that neither of these potential hazards would affect the project site. Further, the project would not include construction of basements or other subsurface structures that would involve substantial excavations that could become unstable. Therefore, this impact would be less than significant.

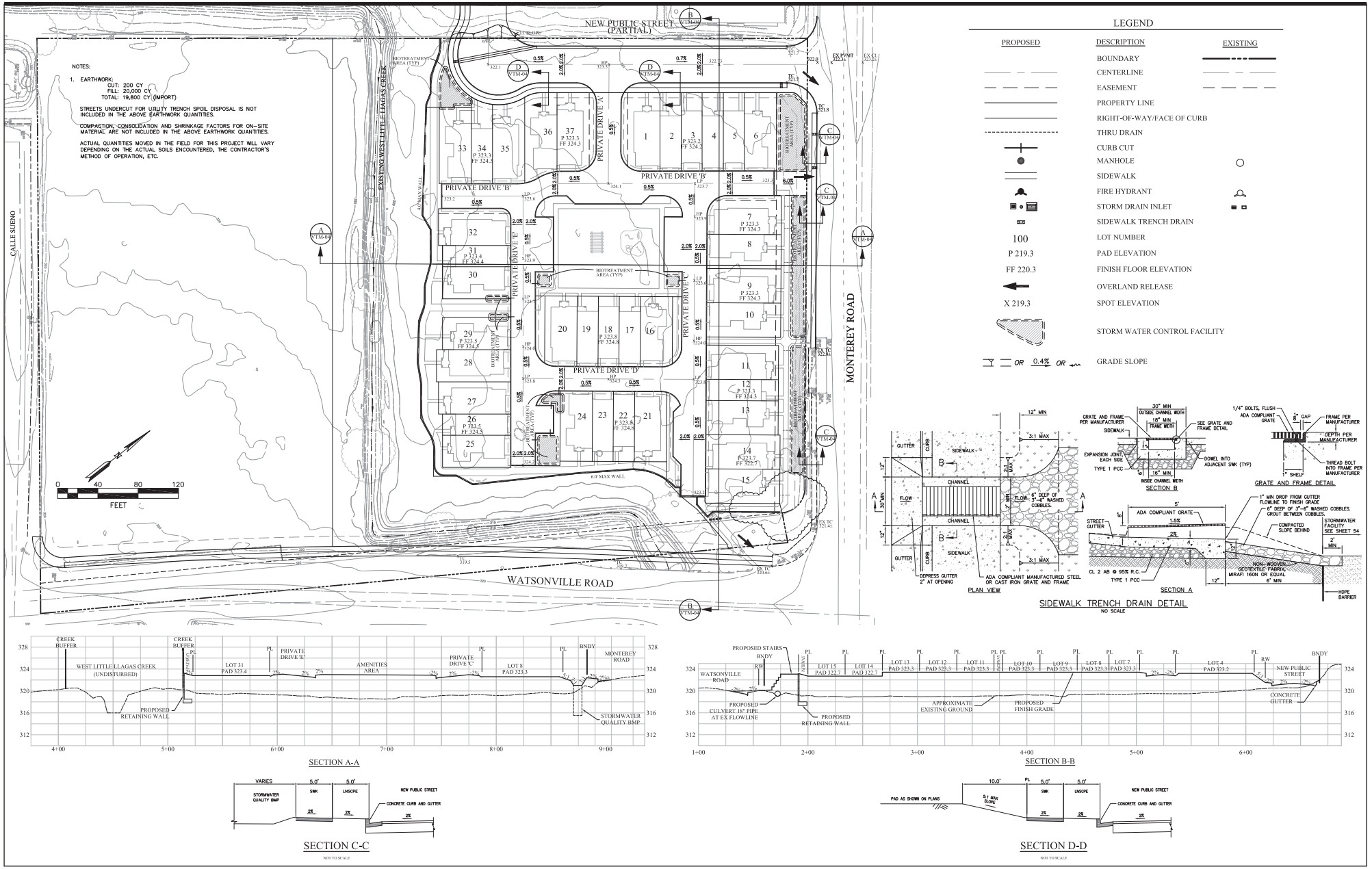
---

[12] The County of Santa Clara, 2012. Santa Clara County Geologic Hazard Zones, Map 53. October 26. Accessed at https://www.sccgov.org/sites/dpd/DocsForms/Documents/GEO_GeohazardATLAS.pdf on November 13, 2015.

[13] The County of Santa Clara, 2012. Santa Clara County Geologic Hazard Zones. October 26. Accessed at http://www.sccgov.org/sites/planning/GIS/GeoHazardZones/Documents/GeohazardMapsATLAS2.pdf65tg on November 13, 2015.

Grading and Drainage Plan

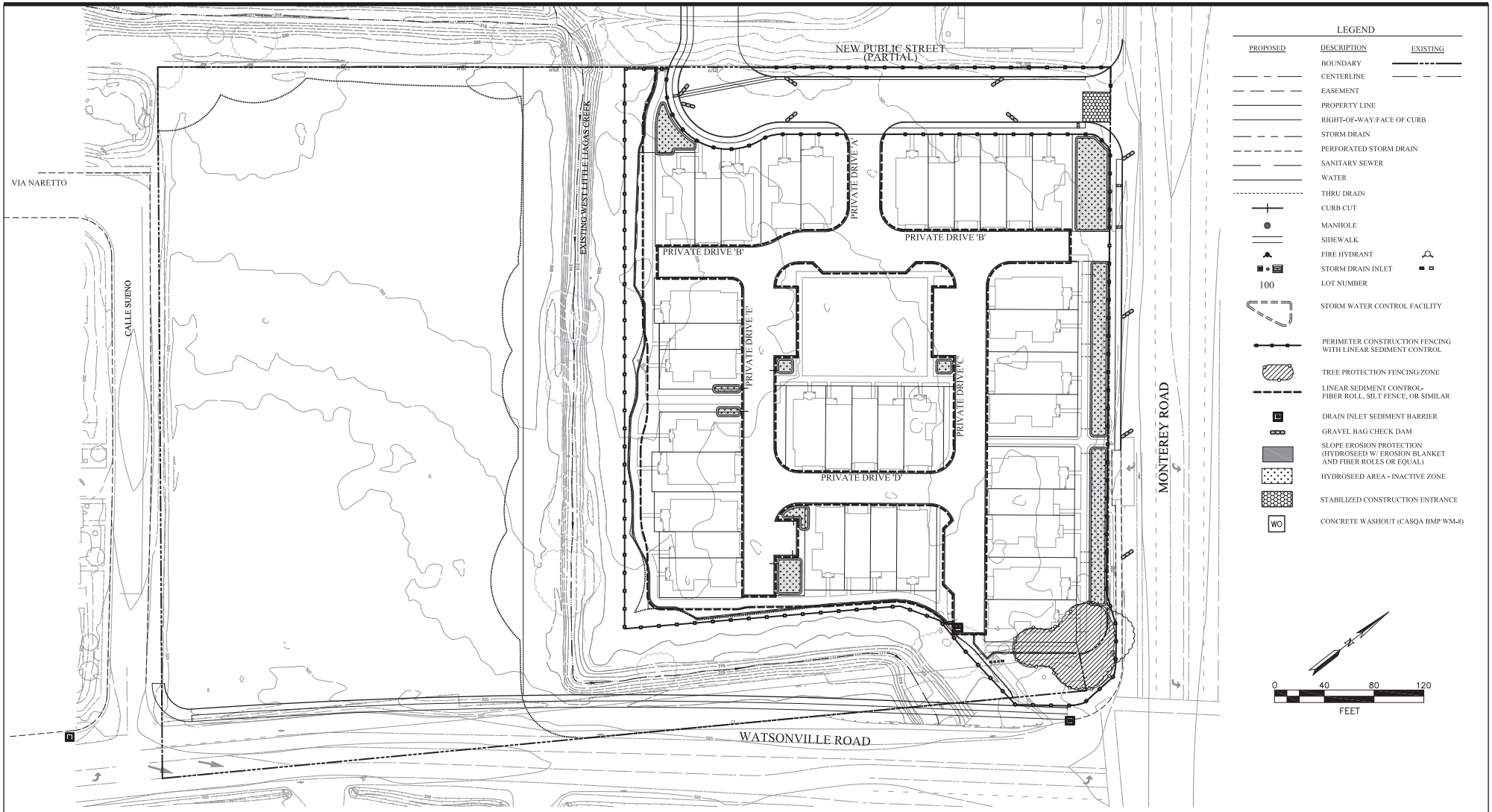
Figure 7



Source: Ruggeri Jensen Azar (2015)

Erosion Control Plan

Figure 8



NOTE:
THIS CONCEPTUAL EROSION CONTROL EXHIBIT IS PROVIDED FOR ENTITLEMENT PURPOSES ONLY AND IS NOT FOR CONSTRUCTION. UPON PROJECT APPROVAL, A CONSTRUCTION-LEVEL EROSION CONTROL PLAN WILL BE PREPARED IN CONJUNCTION WITH A SWPPP FOR THE PROJECT'S GRADING AND IMPROVEMENT PLAN SUBMITTAL.

Source: Ruggeri Jensen Azar (2015)

Expansive Soils. Expansive soil conditions could damage project improvements, which would represent a significant impact unless substantial damage is avoided by incorporating appropriate engineering into the grading and foundation design of proposed buildings and improvements. As a Standard Condition of Approval, the applicant will be required to prepare a soils (geotechnical) engineering report and this report shall include soil classifications and foundation design recommendations in conformance with UBC Chapter 29 (UBC Appendix Chapter 33).

Soils Incapable of Supporting Septic Tanks or Alternative Wastewater Disposal Systems. The project site is located within the Morgan Hill city limits and the area is served by the community's sewer system. No septic tanks or alternative wastewater disposal systems would be required for the project or proposed as part of the project. Rather, connection to the sewer system would eliminate the use of septic systems currently at the site. Therefore, there would be no impact related to having soils capable of supporting the use of septic tanks or alternative waste disposal systems.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
7. Greenhouse Gases - Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

Significance Thresholds and Criteria. Exercising its own discretion as lead agency and similar to other San Francisco Bay Area jurisdictions, City staff has decided to rely on the thresholds within the *Options and Justification Report* (dated October 2009) prepared by the BAAQMD.[14] The BAAQMD *Options and Justification Report* establishes thresholds based on substantial evidence and are consistent with the thresholds outlined within the BAAQMD's 2011 CEQA Air Quality Guidelines.[15] Although BAAQMD failed to comply with CEQA before adopting its CEQA Guidelines, City staff believes that these

[14] Bay Area Air Quality Management District, 2009. Revised Draft Options and Justification Report. October. Available online at http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx.

[15] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. Updated May 2011 and May 2012. Available online at http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx.

recommendations still represent the best available science on the subject of what constitutes significant GHG effects on climate change and they are as follows:

- Compliance with a Qualified Climate Action Plan or
- Meet one of the following thresholds:
  - 1,100 MT CO_2e per year; or
  - 6.7 MT CO_2e per capita per year (residential) / 4.6 MT CO_2e per service population per year (mixed use)

For purposes of this report, project compliance with the 1,100 MT CO_2e/year threshold is used as the primary basis to determine significance.

7a. Greenhouse Gas (GHG) Emissions

Short-term GHG emissions would be generated by project-related construction activities. In addition, project implementation would also contribute to long-term increases in greenhouse gases (GHGs) from direct sources (traffic increases and minor secondary fuel combustion emissions from space heating). Development occurring as a result of the proposed project would also result in other indirect operational increases in GHG emissions as a result of electricity generation to meet project-related increases in energy demand. Electricity generation in California is mainly from natural gas-fired power plants. However, since California imports about 20 to 25 percent of its total electricity (mainly from the northwestern and southwestern states), GHG emissions associated with electricity generation could also occur outside of California. Space or water heating, water delivery, wastewater processing and solid waste disposal also generate GHG emissions.

The CalEEMod 2011.1.1 computer model was used to calculate GHG emissions that would be generated by the construction and operation of proposed residences, and results are presented in **Table 5**. As indicated in this table, project construction would generate up to approximately 449 metric tons of CO_2-equivalents (MT CO_2e) per year.[16] The BAAQMD does not have a quantitative significance threshold for construction-related GHG emissions, but the project's estimated construction-related GHG emissions are expected to have a less-than-significant impact on global climate change. For comparison purposes, this emissions rate is well below this report's operational significance threshold of 1,100 metric tons (MT) of CO_2e per year, which would be an indication that the project's construction-related GHG emissions would be less than significant. The proposed project would also be subject to the existing CARB regulation (Title 13 of the California Code of Regulations, Section 2485), which limits idling of diesel-fueled commercial motor vehicles, and compliance with this regulation would further reduce GHG emissions associated with project construction vehicles (compliance with idling limits is required under Mitigation Measure AQ-1 in Section 3, Air Quality). The BAAQMD also encourages implementation of construction-related GHG reduction strategies where feasible, such as: using alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment such that these vehicles/equipment comprise at least 15 percent of the fleet; using local building materials such that these materials comprise at least 10 percent of all construction materials; and recycling or reusing at least 50 percent of construction waste or demolition materials. None of these measures is specifically proposed as part of the project.

[16] Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents" or CO_2e, which present a weighted average based on each gas's heat absorption (or "global warming") potential. When CO_2 and non-CO_2 GHG emissions are considered together, they are referenced as CO_2e, which add approximately 0.9 percent to CO_2 emissions from diesel equipment exhaust (California Climate Action Registry, *General Reporting Protocol, Version 3.1,* January 2009. Available online at: http://www.climateregistry.org/tools/protocols/general-reporting-protocol.html. Accessed on November 16, 2015). See Table 1 for other construction assumptions.

TABLE 5

PROJECT-RELATED OPERATIONAL GHG EMISSIONS

GHG Source	Project MT CO_2e/year
Construction Emissions	
- 2017	401
- 2018	48
Total	**449**
Operational Emissions	
- Area	2.9
- Energy	85.3
- Mobile Sources	224.4
- Waste	7.7
- Water	8.3
Total	**328.6**
CEQA Significance Threshold	<1,100 MT CO_2e

SOURCE: CalEEMod Output (see Attachment 1)

Project operation is estimated to generate approximately 329 MT CO_2e per year. Such an increase would not exceed this report's significance threshold of 1,100 MT CO_2e per year. Therefore, the project's operational GHG emissions would be less than significant.

7b. Greenhouse Gas Reduction Plans, Policies, and Regulations

The City of Morgan Hill is currently preparing a Climate Action Plan, but does not currently have an adopted CAP However, California has passed a number of bills related to GHG emissions and the Governor has signed at least three executive orders regarding greenhouse gases. The Governor's Office of Planning and Research has not yet established CEQA significance thresholds for GHG emissions. GHG statutes and executive orders (EO) include EO S-1-07, EO S-3-05, EO S-13-08, EO S-14-08, EO S-20-04, EO S-21-09, AB 32, AB 341, AB 1493, AB 3018, SB 97, SB375, SB 1078 and 107, SB 1368, and SB X12. AB 32 establishes regulatory, reporting, and market mechanisms to reduced statewide GHG emissions to 1990 levels by 2020. Pursuant to this requirement, the California Air Resources Board (CARB) adopted its Scoping Plan, which contains the main strategies to achieve required reductions by 2020. As indicated above, the project's construction-related and operational GHG emissions would not exceed this report's significance threshold of 1,100 MT. This threshold is based on the BAAQMD's 2011 CEQA Air Quality Guidelines, which in turn, relates to AB 32 GHG reduction goals. Therefore, the project's GHG emissions would not conflict with plans and policies adopted for the purpose of reducing GHG emissions, a less-than-significant impact.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
8. Hazards and Hazardous Materials - Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

8a. Routine Transport, Use, or Disposal of Hazardous Materials

Development of a new residential use at the project site would result in an increase in the generation of household hazardous wastes that are typical of any residential area. Common household hazardous wastes such as paint, pesticides, used oil and antifreeze, could result in direct or indirect effects on human health and the environment if not appropriately handled and disposed of. In addition to water quality impacts from stormwater runoff, other potential impacts such as direct human contact with hazardous materials could result from improper use or disposal of hazardous household chemicals.

Although Morgan Hill residents can legally dispose of household hazardous wastes under the County of Santa Clara Household Hazardous Waste program, the project's impacts related to the generation and disposal of hazardous waste would be potentially significant because not all residents are knowledgeable in the identification of hazardous wastes and appropriate disposal requirements. This impact would be reduced to less than significant with implementation of Mitigation Measure HAZ-1, Buyer Education Program for Household Hazardous Waste, which requires implementation of a buyer education program to educate residents about the identification of household hazardous wastes, environmental hazards associated with mishandling of the wastes, appropriate disposal methods, and how to make an appointment for disposal. Impacts related to the routine transport of household hazardous materials would be less than significant because the materials are commercially packaged for retail sale, and transport of these materials is well regulated by state and federal regulations.

8b, 8d. Release of or Exposure to Hazardous Materials

A Phase I Environmental Site Assessment (Phase I ESA) was completed for the project site by Hillman Consulting, LLC in September, 2013.[17] The ESA is available for public review at the City's Community Development Department, located at 17575 Peak Avenue. The following impact discussion summarizes the findings of the Phase I ESA regarding past site uses, the use of hazardous materials at the project site, and soil or groundwater contamination to be present. The ESA included a site reconnaissance and an interview with the property owner as well as review of regulatory databases, local agency files specific to the site, and historical documentation (including aerial photographs, topographic maps, and City Directories).[18]

Site History and Description. A review of historical records indicates that the subject property appears to have been used for agriculture from at least 1939 until 1993. In 1982, the property appears to also have had two bodies of water on it. By 1999, the property reverted to its current state as undeveloped land. A review of aerial photos (dating back to 1939) and topographic maps (dating back to 1917) indicates that no structures have ever been built on the project site.

There is no evidence of any spills or releases on the property, nor was any evidence of storage, generation, or illegal disposal of hazardous materials observed. The Phase I ESA also indicated there was no evidence of wells, septic systems, deposits of non-native fill materials, stained soils, underground or aboveground petroleum storage tanks, PCB-containing equipment, or pits/ponds/lagoons associated with waste treatment/disposal. Since there are no buildings on the site, health risks associated with asbestos-containing materials, lead-based paint, or mold are not applicable.

The environmental database review did not identify any sites in the project vicinity that would likely affect soil or groundwater quality at the subject property.

Hazardous Materials in Soil. As described above, the proposed project site was in agricultural use from at least 1939 until 1993. Due to its past agricultural use, historic applications of pesticides could have occurred at the subject property, which could result in the presence of residual pesticides in the shallow soils of the property. Pesticide residuals in the soil could present a health hazard to construction workers, the public, or future residents at the site if present at concentrations that would present a health risk. To determine whether pesticide residuals are still present in site soils, a Phase II Subsurface Investigation was conducted at the subject property in October, 2013.[19] The Phase II report is available for public review at the City's Community Development Department, located at 17575 Peak Avenue.

Ten soil borings were collected at the site to total depths ranging from 0.5 to 2.5 feet using a hand auger tool. Samples were screened in the field for volatile emissions with a photo-ionization detector calibrated to hexane during drilling. Select samples were preserved for laboratory analysis and tested for organo-chlorine pesticides. Results of the laboratory analysis indicated that none of the soil samples analyzed had detectable levels of chlorinated pesticides. Therefore, potential health risks from past agricultural uses would be less than significant and no further investigation is required.

Naturally Occurring Asbestos. Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may

---

[17] Hillman Consulting, LLC, 2013. *Phase I Environmental Site Assessment, APN 76723030, Morgan Hill, California*. September 17.

[18] Sanborn Fire Insurance Maps are standard historical sources also typically reviewed for Phase I Environmental Site Assessments. However, there is no Sanborn Map coverage for the proposed project site.

[19] Hillmann Consulting, LLC, 2013. *Phase II Subsurface Investigation Report. APN 76723030, Morgan Hill, CA*. October 4.

become airborne, causing air quality and human health hazards. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. However, the project site is not located in an area where naturally occurring asbestos is likely to be present[20] and therefore, there is no impact associated with exposure to naturally occurring asbestos.

8c. Hazardous Emissions or Use of Acutely Hazardous Materials

Hazardous emissions are toxic air contaminants (TACs) identified by the CARB and the BAAQMD. Extremely hazardous materials are defined by the State of California in Section 25532 (2)(g) of the Health and Safety Code. During project construction, only common hazardous materials such as paints, solvents, cements, adhesives, and petroleum products (such as asphalt, oil, and fuel) would be used, none of which are considered extremely hazardous materials. As discussed in Section 3, Air Quality, the only toxic air contaminant that would be emitted during construction is diesel particulate matter (DPM). The Oakwood School, a private K-12 school, is located approximately 0.16 mile south of the site, less than ¼ mile from the site. Paradise Valley Elementary School is located approximately 0.4 mile northwest of the site. As discussed in Section 3d, Exposure of Sensitive Receptors, operation of project-related diesel construction equipment would result in less-than-significant cancer and non-cancer risks on sensitive receptors located adjacent to the site. Therefore, construction-related impacts on the Oakwood School, which is located within ¼-mile of the site (but farther from the site than the closest sensitive receptors), would also be less than significant.

There would be no use of extremely hazardous materials or emissions of TACs once project residences are constructed and occupied. Therefore, there is no impact associated with hazardous emissions within ¼-mile of a school once the project is constructed.

8e, 8f. Airports/Airstrips

The nearest airport to the proposed project is the San Martin Airport, located approximately 3.2 miles to the southeast of the site. Therefore, there is no impact associated with safety hazards due to location of a project within 2 miles of a public airport or in the vicinity of a private airstrip.

8g. Emergency Plans

The project would not impair or physically interfere with an adopted emergency response or emergency evacuation plan. The project will be required to comply with Fire Department Standard Details and Specifications to ensure adequate emergency access to project buildings by fire engines. Therefore, the project's impact on emergency response would be less than significant.

8h. Wildland Fire Hazards

The proposed project site is not located in a fire hazard severity zone within a local responsibility area[21] or state responsibility area.[22] Therefore, there is no impact related to risks associated with wildland fires.

---

[20] Department of Conservation Division of Mines and Geology, 2000. A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report. August. Available online at ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/ofr_2000-019.pdf

[21] California Department of Forestry and Fire Protection, *Santa Clara County Draft Fire Hazard Severity Zones in LRA*, October 4, 2007. Available online at http://www.fire.ca.gov/fire_prevention/fhsz_maps_santaclara.php.

[22] California Department of Forestry and Fire Protection, *Santa Clara County Fire Hazard Severity Zones in SRA,* Adopted by CAL FIRE on November 7, 2007. Available online at http://www.fire.ca.gov/fire_prevention/fhsz_maps_santaclara.php.

Mitigation Measures – Hazards and Hazardous Materials (HAZ)

The following measure will ensure that potentially significant effects from hazardous materials would be reduced to less than significant levels:

HAZ-1: ***Household Hazardous Waste Disposal****. The project sponsor, working with the City of Morgan Hill and County of Santa Clara Household Hazardous Waste program, shall implement a Buyer Education Program for Household Hazardous Waste, developing materials to educate buyers about the identification of household hazardous wastes, environmental hazards associated with mishandling of the wastes, appropriate disposal methods, and how to make an appointment for disposal. At a minimum, the educational materials shall include a list of example household hazardous wastes, discuss the environmental impacts of improper disposal, explain how to make an appointment for disposal, and list safer and less toxic alternatives to hazardous products commonly used. The educational materials shall be provided to the buyer at the time of purchase.*

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
9. Hydrology and Water Quality - Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	☐	☒	☐	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☒	☐	☐
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	☐	☒	☐	☐

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

The 9.35-acre project site is fairly level, sloping slightly to the east, with elevations ranging from approximately 322 feet above mean sea level (msl) at the northwestern corner of the site to 311 feet above msl at the southeastern corner. A reach of West Little Llagas Creek enters the subject property on its northwestern perimeter and crosses site to the southeast, bisecting the project site as a linear drainage channel. Mature trees line a section of the site's northeastern boundary, the property's frontage on Monterey Road, and at the eastern corner of the site on Watsonville Road. Intense storm runoff drains from the project site and enters the creek channel on the site. Runoff in the stream channel is conveyed through box culverts under Watsonville and Monterey roads to the stream channel on agricultural lands to the east of this intersection. Storm flows in West Little Llagas Creek drain to the southeast, cross under US Highway 101, enter the Madrone Channels on the east side of the freeway, ultimately flowing to the Pajaro River in San Benito County.

9a, 9f. Water Quality

Construction. The proposed project includes grading the site and the placement of 19,800 cubic yards (CY) on the site, and construction of 37 new residences along with associated storm drainage improvements and other infrastructure. Excavation, filling, and other earth moving activities would be conducted over approximately half (52%) of the 9.35-acre) site. Without proper precautions, this excavation and associated stockpiling of soil and placement of imported fills could induce erosion, and related sedimentation, resulting in degradation of water quality in the existing storm drain system. Construction activities would also require the use of hazardous materials that could degrade water quality without proper controls.

However, in accordance with Chapter 13.30 of the City of Morgan Hill Municipal Code (Urban Storm Water Quality Management and Discharge Control), the project applicant would be required to comply with the requirements of the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ (Construction General Stormwater Permit) to control erosion during construction. The Construction General Stormwater Permit applies to projects that disturb one or more acres of soil, or disturb less than one acre but are part of a larger common plan of development that disturbs one or more acres. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. In accordance with this permit, the project sponsor would be required to submit a Notice of Intent and implement a Storm Water Pollution Prevention Plan (SWPPP).

The SWPPP prepared in accordance with this permit would include at least the minimum BMPs related to housekeeping (storage of construction materials (including hazardous materials), waste management, vehicle storage and maintenance, landscape materials, pollutant control); non-stormwater management; erosion control; sediment control; run-on and run-off control. Additional BMPs would be specified as needed to protect water quality from construction-related stormwater and non-stormwater discharges. As part of the SWPPP, the project applicant would implement a construction site monitoring program to demonstrate compliance with the discharge prohibitions of the General Permit; demonstrate whether non-visible pollutants are present and could contribute to an exceedance of water quality objectives; identify

the need for correction actions, additional BMPs, or SWPPP revisions; and evaluate the effectiveness of the existing BMPs. The SWPPP must also be submitted to the City of Morgan Hill Engineering Division for review and approval. Chapter 13.30 of the City of Morgan Hill Municipal Code also specifies requirements for implementation of erosion and sedimentation controls.

With implementation of the requirements of the Construction General Stormwater Permit and specific erosion and sedimentation requirements of Chapter 13.30 of the City of Morgan Hill Municipal Code, water quality impacts related to erosion and a release of hazardous materials during construction would be less than significant.

Post-Construction. The project site is undeveloped and most of the stormwater infiltrates to the groundwater through the soil. Under the proposed project, the total building coverage for all 37 residences would be 48,300 square feet (s.f.), and 23,360 s.f. of impervious surfaces would be created by the construction of driveways, sidewalks, and streets. In all, impervious surfaces would comprise 71,660 s.f., or approximately 18 percent of the post-development project site. These new impervious surfaces would decrease the amount of stormwater infiltration and increase flows to the storm sewer system, potentially increasing the discharge of stormwater pollutants to the storm drainage system and the potential for erosion in Little Llagas Creek where the stormwater is discharged.

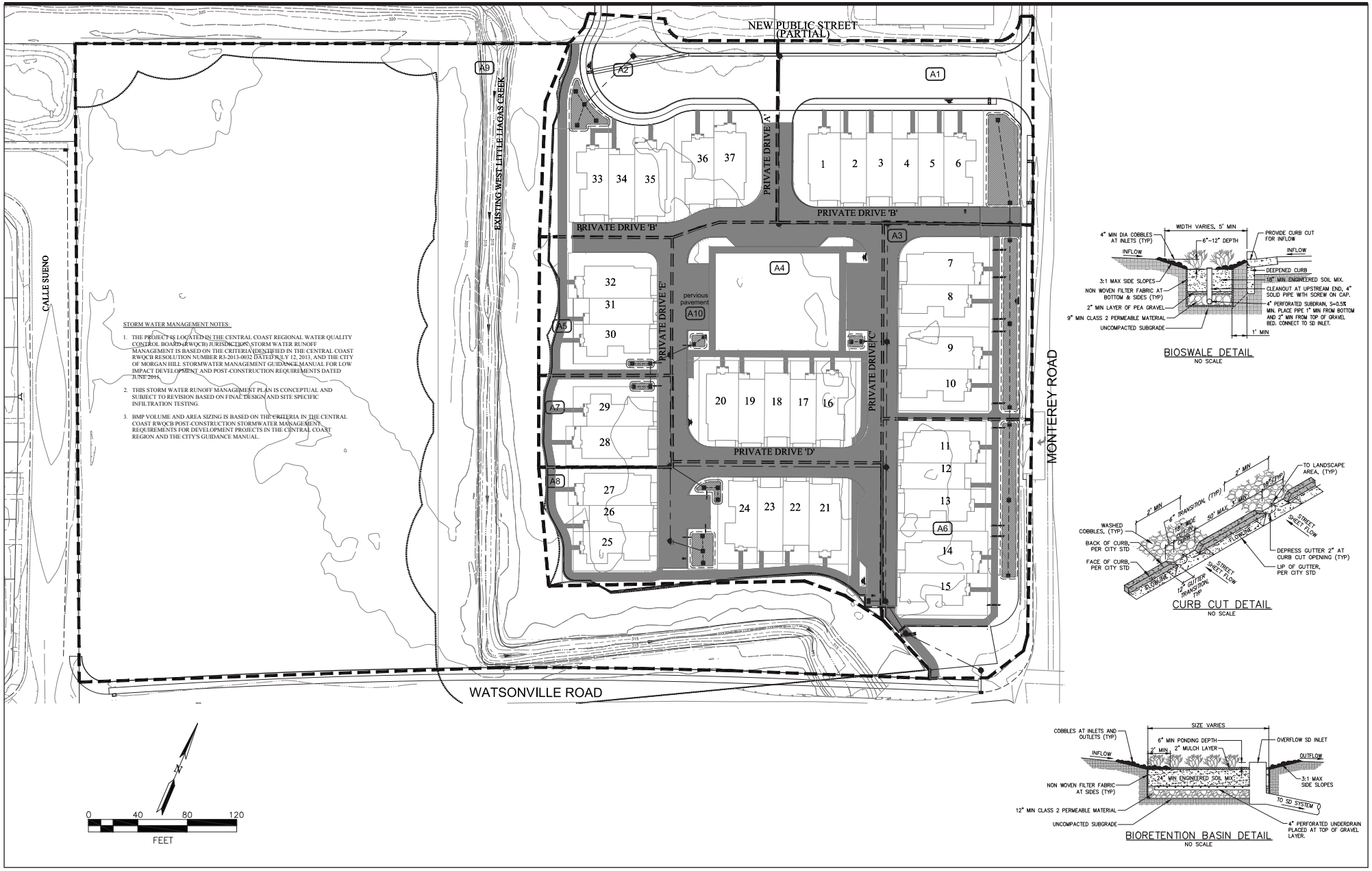
In order to control the stormwater effects of project development, the post-construction stormwater runoff from the proposed project would be managed in accordance with Resolution R3-2013-0032 issued by the California Regional Water Quality Control Board, Central Coast Region.[23] This resolution formally adopts post-construction stormwater management requirements for development projects in the Central Coast Region. The requirements identify 10 Watershed Management Zones (WMZs) in the covered area, and specify stormwater management requirements for each zone, depending on the size of the development project. Because the proposed project site is located in an area classified as WMZ-1, and would involve the creation of 71,660 s.f. of impervious surfaces, stormwater management at the project site must include site design and runoff features to limit the amount of runoff from the project site as well as on-site water quality treatment to reduce pollutant loads in the stormwater runoff using a Low Impact Development (LID) treatment system such as biofiltration. In WMZ-1, the treatment system must retain 95 percent of the runoff from the project site and also maintain peak runoff flows such that they do not exceed pre-project flows.

The project plans propose the construction of a bioretention system to treat at least 95 percent of the runoff from the project site. The design, construction, operation, and maintenance of the system is addressed in the Stormwater Management Plan (**Figure 9**), which was submitted to the City of Morgan Hill in accordance with the stormwater management requirements adopted by Resolution R3-2013-0032. This plan demonstrates how the bioretention facility would meet the specified water quality, runoff retention, and peak flow management requirements. Prior completion of the project, the stormwater controls would be field verified by the City of Morgan Hill to confirm design of the controls in accordance with the specified standards, and the controls would be subject to later operation and maintenance inspections by the City.

With implementation of the requirements adopted by Resolution R3-2013-0032, water quality impacts related to violation of water quality standards or waste discharge requirements would be less than significant once the project is constructed.

---

[23] Resolution No. R3-2013-0032 is available online at http://www.waterboards.ca.gov/centralcoast/water_issues/programs/stormwater/docs/lid/lid_hydromod_charette_index.shtml



Source: Ruggeri Jensen Azar (2015)

9b. Groundwater Resources

The proposed project is located in the Llagas Subbasin of the Gilroy-Hollister Groundwater Basin which has an area of 87 square miles and is used by the City of Morgan Hill as a water supply.[24,25] However, the project would not result in depletion of groundwater supplies in this subbasin because the project does not propose to install wells or otherwise use groundwater beyond what is supplied by the City. Further, in accordance with current building standards, development of residential uses on the site would include the use of water-conserving fixtures that would help minimize water use by future residents.

The project includes the construction of 71,660 square feet of new impervious surfaces that could reduce the infiltration of stormwater at the site, resulting in an associated decrease in groundwater recharge in the project area. However, the new impervious surfaces represent approximately 0.1 percent of the total area of the groundwater subbasin. Further, as discussed in 9a, the project applicant would construct a bioretention facility to infiltrate 95 percent of the stormwater runoff from the project site in accordance with the stormwater management requirements adopted by Resolution R3-2013-0032. With construction of the proposed stormwater controls, the amount of stormwater recharged to the groundwater would be similar to existing conditions and any reduction in groundwater recharge would be minute.

Based on the above analysis, impacts related to depletion of groundwater resources and interference with groundwater recharge would be less than significant.

9c, 9d, 9e. Drainage

The project includes the construction of 71,660 s.f. of impervious surfaces which could potentially concentrate stormwater runoff flows and result in on- or off-site erosion or flooding, increase flows to the storm sewer system, and increase the discharge of stormwater pollutants to the storm sewer. However, as discussed in 9a, the project applicant would construct bioretention facilities that would treat and retain 95 percent of the runoff from the project site and also maintain peak runoff flows such that they do not exceed pre-project flows in accordance with the stormwater management requirements adopted by Resolution R3-2013-0032. With implementation of the required stormwater controls, the project would not result in runoff that would cause on- or off-site erosion or flooding, exceed the capacity of the existing storm sewer system, or provide an additional source of polluted runoff. Therefore, impacts related to these topics would be less than significant.

9g, 9h, 9i, 9j. Flood Hazards

100-Year Flood. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, the project area is located within the 100-year flood zone associated with the closest drainage channel, Little Llagas Creek.[26] In order to determine the potential flooding hazards for the project site and its vicinity, the project applicant prepared and submitted to the City a Hydraulic Impact Study[27] (HIS) for

---

[24] City of Morgan Hill, 2013. *Morgan Hill 2035, Existing Conditions White Papers, Environmental Resources and Hazards. Public Review Draft*. May 16. Available at http://morganhill2035.org/wp-content/uploads/2013/06/4_EnvResourcesHazards.pdf

[25] California Department of Water Resources, 2004. *California's Groundwater Bulletin 118, Central Coast Hydrologic Region, Gilroy-Hollister Groundwater Basin, Llagas Subbasin*. February 27. Available at http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/3-3.01.pdf

[26] Federal Emergency Management Agency (FEMA), 2009. *Flood Insurance Rate Map, Santa Clara County, California and Unincorporated Areas, Panel 444 of 830. Map Number 06085C0444H*. May 18.

[27] Schaaf & Wheeler, 2012. *Lands of Young Hydraulic Impact Study*. February 15.

the project as originally proposed, involving residential development on the sections of the property both east and west of the Little Llagas Creek channel crossing the site. With the subsequent revision of site development plans to limit residential development to the eastern part of the site, the HIS was revised[28] and submitted for peer review by the Santa Clara Valley Water District (SCVWD). The original and revised HIS, as well as the SCVWD assessment of the revised HIS[29], are included as **Attachment 5** of this Initial Study. As a result of the analysis discussed further below, and in conformance with floodplain management guidelines, the project will be required to have a FEMA Letter of Map Revision (LOMR) completed for the effective Flood Insurance Map for Little Llagas Creek.

The revised HIS included four models to evaluate the project's potential effects on floodplain elevations at and upstream of the proposed project. Based upon the results of hydraulic modeling and analyses, the HIS determined that the project site design has a maximum increase in water surface elevation of 0.09 ft. The cumulative impacts from the additional developments upstream of the project site would create a maximum increase in water surface elevation of approximately 0.4 feet when compared to existing conditions and, therefore, the cumulative effect of the proposed development when combined with all other existing and anticipated development would not increase the water surface elevation of the base flood more than one foot at any point. Consequently, the proposed project could be constructed with the implementation of the mitigation measures, as it would not have a substantial hydraulic impact on West Little Llagas Creek and there is no indication that the proposed site modifications would significantly increase flood risk in the region during a 100-year event.

It should be noted that the Hydraulic Impact Study included evaluations for the development of the eastern portion of the project site, identified as Phase 1, and the western part of the site, called Phase 2. The project design plans to retain the western part of the project site and the West Little Llagas Creek with its riparian setback area as open space. No development is proposed for the western portion of the site as part of the proposed project.

The SCVWD review of the HIS indicates that the hydraulic analysis appears to be in accordance with standard engineering practice utilizing the information available. The SCVWD also provides the following recommendations to the City:

- adoption of the "No Adverse Impact" floodplain management principle developed by the Association of State Floodplain Managers;

- track additional developments in this area of the West Little Llagas Creek floodplain to ensure the cumulative impact does not violate NFIP or City floodplain regulations or cause an adverse impact onto neighboring properties in the floodplain;

- all other aspects for development of the site should be in accordance with the Guidelines and Standards for Land Use Near Streams, including any plantings along West Little Llagas Creek; and

- that the City obtain a final copy of the report signed and stamped by the registered engineer who prepared it.

Inundation by Dam Failure. Dams located near Morgan Hill include Anderson Dam and Chesbro Dam. According to the Association of Bay Area Governments (ABAG), almost all of the valley floor terrain in

[28] Schaaf & Wheeler, 2016. *Lands of Young Hydraulic Impact Study*. February 16.

[29] Santa Clara Valley Water District, 2016. Presidio Mana Young Floodplain Study. February 23.

Morgan Hill is within the area that would be inundated if these dams were to fail with reservoirs at full capacity. The project site is located in the dam failure inundation area of Anderson Dam.[30]

In July 2011, the Santa Clara Valley Water District completed a seismic stability evaluation of Anderson Dam. The evaluation found that the dam is subject to significant damage if a large earthquake were to occur close to the dam. A storage restriction of 25.5 feet below the spillway has been put in place to protect public safety. The dam's two regulatory agencies, the California Division of Safety of Dams and the Federal Energy Regulatory Commission approved the restriction. The restriction will allow the dam to fill to 67 percent of its full storage capacity. District staff believes that this will prevent the uncontrolled release of water after a major earthquake. The water district has initiated a capital project, the Anderson Dam Seismic Retrofit Project, to complete the planning, design and construction of a seismic retrofit by the end of 2018. The operating restriction will remain in place until the project is completed. The potential for flooding on the site is considered to be negligible to very low and, consequently, impacts related to flooding as a result of failure of a levee or dam would be less than significant.

Inundation by Seiche, Tsunami, or Mudflow. The project site is located at approximately 311 to 322 feet (msl) more than 18 miles inland from the Pacific Ocean coastline, and separated from the coast by mountainous terrain; therefore, there would be no risk associated with tsunamis which are large sea waves. Seiches are standing waves caused by large-scale, short-duration phenomena (e.g. wind or atmospheric variations or seismic activity) that result from the oscillation of confined bodies of water (such as reservoirs and lakes) that may damage low-lying adjacent areas as a result of changes in the surface water elevation. The project site is not located in the vicinity of any confined water bodies and would therefore not be subject to a seiche. Based on this, there would be no impact related to exposure of people or structures to significant risk of loss, injury, or death involving seiche, or tsunami. Risks associated with landslide-induced mudflows are discussed in Geology and Soils.

Mitigation Measures – Hydrology and Water Quality (HYD)

The City will require the following mitigation measures to ensure that potentially significant effects of flood hazards upon the proposed project and future residents would be reduced to less than significant levels:

HYD-1: ***Base Flood Elevation.*** *Due to the cumulative increase in the Base Flood Elevation (BFE) of 0.4 feet, the project will be required to file for a Conditional Letter of Map Revision (CLOMR) to FEMA for approval of the increase of the BFE by 0.4 feet and re-mapping of the affected areas due to cumulative developments. CLOMR shall be approved by FEMA prior to issuance of any Building Permit.*

HYD-2: ***Building Elevations.*** *All project building/structures shall be elevated 1 foot above the updated BFE of the CLOMR.*

HYD-3: ***FEMA Map Revision****. Project shall file a Letter of Map Revision (LOMR) with FEMA prior to acceptance of the public improvements or once the building pad grades of the subdivision have been elevated above the updated BFE.*

---

[30] Association of Bay Area Governments, *Dam Failure Inundation Hazard Map for Morgan Hill*, 1995. Accessed at http://www.abag.ca.gov/cgi-bin/pickdamx.pl

HYD-4: ***Construction Elevation Certificate****. Project shall provide FEMA elevation certificate of each building to verify finished construction has the proper 1-foot free board of the updated BFE.*

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
10. Land Use and Planning - Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

10a. Divide an Established Community

The Project Description presents the land use designations and development application for the 9.35-acre project site. In brief, the project site (APN 767-23-030) has a General Plan designation (General Plan Land Use Diagram, 2012) for Multi-Family Low Density use of 5 to 14 dwelling units per acre. Parcels adjoining the project site to the south and west have a similar General Plan land use designation. Properties to the north and east of the project site are designated for Industrial and Non-Retail Commercial uses, respectively.

Zoning for the project site is R2-3,500, the same residential zoning district as adjoining properties to the south and west. This level of proposed residential use would be consistent with the General Plan's Multi-Family Low density designation.

The project site adjoins to an existing residential neighborhood to the south of the project site. Consequently, the proposed project would not divide an established community, but rather complement and further the connectionof the surrounding established neighborhoods and other areas that are planned for future urban development.

10b. Project Consistency with Land Use Plans and Policies

The project would be subject to policies of the Morgan Hill General Plan Community Development Element. The project would be consistent with pertinent policies of the General Plan. Relevant policies and project consistency with these policies are discussed below:

General Plan Policies	Project Consistency
Community Development Element *Policy 2a. Encourage the orderly development of the city, with concentric growth and infill of existing development areas.* *Policy 2c. Consider land within or adjacent to the City as available for urban development only when it is included within the Urban Service Area and can be developed in a manner which will be cost-effective to the City….*	Consistent. Since the project site is surrounded by residential development, the project would be consistent with Policy 2a by addressing the need for development of infill parcels. In addition, the site is designated in the Morgan Hill General Plan as Multi-Family Low Density Residential (5 to 14 dwelling units per acre), which would be consistent with Policy 2c.

General Plan Policies	Project Consistency
Policy 7a. Plan for a population of 48,000 residents in 2020 *Policy 7b. Plan for an approximate 70/30 ratio of single family detached to single family attached and multi-family housing for all future residential development.* *Policy7c. Under the Residential Development Control System (RDCS) procedures, continue to emphasize single family development in the distribution of units between single family and multi-family development.* *Policy 7g. Continue to provide for a full range of residential land use densities and building types, including mobile home, within the General Plan and Zoning Ordinance.* *Policy 7i. Encourage a mix of housing types and lot sizes within residential projects with five or more lots or units.*	Consistent. The Residential Development Control System (RDCS) implements these policies by controlling annual population growth based on a 2020 population cap of 48,000. Since annual development allotments are allocated in accordance with the RDCS, which takes into account the impact of the proposed development on public facilities and services, development of the project site could not occur until public facilities and services were available. Public facility and service agencies have indicated that facilities and services are available at the project site (see Sections 14, Public Services and 17, Utilities and Service Systems for more discussion). The proposed project is consistent with the City's objective of providing a variety and mix of housing types and sizes.
Policy 8c. Encourage future residential development projects where local streets are safe, convenient and aesthetically pleasing; and where elementary schools and parks are centrally located to serve the immediate residential area.	Consistent. The proposed residential development includes construction of a loop access road which serves the local community and a park site to be centrally located on the project site.
Policy 19g. To allow school facilities to be used most efficiently and to minimize busing needs, residential development should occur in areas served by existing schools. Contiguous residential development and infill development within built-up areas should be encouraged.	Consistent. The proposed residential development is infill development that is contiguous to existing residential development.

The project site is zoned as R-2, 3,500, Low-Density Residential. The R-2 district permits one single-family detached dwelling per lot, duplex or single-family attached dwellings, multi-family dwellings, small residential care facilities, manufactured homes, small and large family day care homes. The R-2 district is intended to stabilize and protect the residential character of neighborhoods and to promote and encourage a suitable environment for family life. The R-2 district is intended for suburban detached or attached family homes, and the community services related to these residential uses.

The proposed zoning for the project site includes a Planned Development (PD) overlay zoning district. The purpose of the Planned Development (PD) overlay district is to: facilitate and promote coordination of design, access, use intensity, and other features associated with development of mixed use developments, multiple adjacent properties or large single properties; encourage flexibility of site planning when it will enhance the area in which it is proposed; allow construction and reservation of housing units for lower income or senior households, and to regulate the conversion of mobile home parks to resident ownership parks or other uses. The review and approval of the PD overlay district is subject to the provisions of Chapter 18.30 of the City of Morgan Hill Municipal Code.

As required by City ordinance, the project applicant has prepared a Site Development Plan for the development of 37 residential lots on the 9.35-acre parcel, including 10 duet units and 27 townhouses. The development of 37 multi-family attached dwellings would be consistent with permitted uses in the R-2 zone. The project site plan indicates that four townhome and six duet residences are proposed for Lots 6 though 15 along Monterey Road. Residential units along Monterey Road would be set back from the roadway to accommodate sidewalks, bioretention facilities, and front yard areas. Five townhouse units on

Lots 21 through 25 would be developed along Watsonville Road; however, these units would be set back from the West Little Llagas Creek channel and associated riparian buffer that adjoins Watsonville Road in the project vicinity.

A public access road would be extended from Monterey Road along the project site's northwestern boundary to a proposed private loop road on the project site and the loop road would provide access to serve the residential lots. All of the lots except Lots 16 through 21 would be situated around the outside of the loop road; Lots 16 through 21 and the project's open space and recreational area would be located within the loop road. An Emergency Vehicle Access driveway would connect internal Private Drive "B" with Monterey Road for secondary emergency access to the site.

The project design includes the development of a road stub at the terminus of the proposed public street at the western corner of the project site. The road stub would provide for the extension of the public road northward onto the adjoining property to the north of the site for future development. Sidewalks proposed for Monterey and Watsonville roads would be extended along the periphery of the site between residential uses and the buffer zone proposed for West Little Llagas Creek, encircling the proposed residential uses on the site. As a part of the internal circulation plan for the site, the project would provide 74 covered parking spaces (two covered spaces per unit) and 15 off-street parking spaces, which would meet the number of spaces required by City code: a minimum of two covered parking spaces per dwelling unit and one guest parking space for each four dwelling units.

Lands adjacent to the project site are currently developed with various residential uses that are consistent with residential development of the subject property. These land uses include residential and permitted uses within residential planned development zoning districts. The zoning districts adjoining the project site include similar properties zoned low density multi-family (R-2, 3,500 RPD) and medium-density single-family residential (R-1, 7,000 RPD) uses on its south and west boundaries.

The proposed residential development would be similar to existing residential uses that presently adjoin the project site and would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

10c. Conflict with Habitat Conservation or Natural Community Conservation Plans

A review of the project using the Santa Clara Valley Habitat Plan (Habitat Plan) Coverage Screening Form indicates that the project site (APN 767-23-030) is a covered project under the Habitat Plan and would be subject to fees of the Land Cover Fee Zone, specifically Fee Zone B (Agricultural and Valley Floor Land). With the payment of the appropriate fees, the proposed project would not be in conflict with the approved local habitat conservation plan. Section 4, Biological Resources, of this report provides a detailed discussion of the Habitat Plan.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
11. Mineral Resources - Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

11a, 11b. Mineral Resources

The Morgan Hill General Plan does not identify any regionally or locally important mineral resources within the City of Morgan Hill.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
12. Noise - Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

A detailed noise study was completed as part of this Initial Study by Edward L. Pack Associates, Inc. (ELPA) in August 2015 and it is included in **Attachment 6** of this report and summarized below.

Existing Noise Environment

Noise-Sensitive Receptors. Certain land uses are particularly sensitive to noise, including schools, hospitals, rest homes, long-term medical and mental care facilities, places of worship, and parks and recreation areas. Residential areas are also considered noise sensitive, especially during the nighttime hours. Existing sensitive receptors located adjacent to the site include single-family residences located adjacent to the site's western boundary and to the east across Monterey Road.

Existing and Future Noise Levels. The primary sources of noise at the project site are traffic on Watsonville Road and Monterey Road. Noise associated with the Royal Oaks Mushroom Farm, located to the south across Watsonville Road, is also sometimes audible at the site. To determine the existing noise environment at the site, continuous recordings of the sound levels were made at two locations on February 25-26, 2015: Measurement Location 1 was 67 feet from the centerline of Monterey Road, while Location 2 was 70 feet from the centerline of Watsonville Road. Noise measurement locations and results are presented in Figure 2 and Appendix C, respectively, of Attachment 6.

Noise measurements indicate that existing noise levels along Monterey Road ranged from approximately 62 to 70 dBA during the day and about 52 to 66 dBA during the night at 67 feet from the centerline, while noise levels along Watsonville Road ranged between approximately 58 and 65 dBA during day and 49 and 63 during the night at 70 feet from the centerline. Maximum noise levels along Monterey Road

ranged from about 66 to 75 dBA (Location 1) and 60 to 72 dBA along Watsonville Road (Location 2). Since traffic noise dissipates at a rate of 3 to 6 dB for each doubling of the distance from the source to the received, other locations on the site that are at greater distances from these roadways would have lower exterior noise levels.

As indicated in the Morgan Hill Circulation Element, future (2030) traffic volumes are predicted to decrease slightly on Monterey Road, while almost doubling on Watsonville Road between 2009 and 2030. Such traffic changes would yield a 3-dBA noise increase on Watsonville Road and no change on Monterey Road.

Applicable Noise Standards and Significance Criteria

Morgan Hill General Plan Noise Element. Table 9 of the City of Morgan Hill Noise Element present acceptable exterior noise level standards, utilizing the Day-Night Level (DNL) 24-hour descriptor to define acceptable noise exposures for various land uses. These noise standards indicate that exterior noise levels up to 60 decibels (dB) DNL is considered "normally acceptable" for single-family residential uses. However, in areas where noise levels are between 55 dB and 70 dB DNL, new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

A limit of 45 dB DNL is specified for interior living spaces. In addition, the Noise Element specifies that when the exterior noise exposure is greater than 60 dB DNL, the *maximum instantaneous* noise levels shall not exceed 50 dBA in bedrooms and 55 dBA in other living spaces. The exterior noise levels at the proposed building facades along Monterey Road and along Watsonville Road would be higher than 60 dB DNL under existing and future conditions. Therefore, the interior maximum noise limits would apply to this project.

12a. Noise Compatibility of Proposed Uses

Exterior Noise Exposure Levels. The existing and future noise exposure at the proposed minimum building setback of 90 feet from the centerline of Monterey Road was calculated to be 66 dB DNL, which would exceed the City of Morgan Hill Noise Element standards for residential uses by 6 dB. Such levels would occur at certain courtyards proposed along the sides of the project homes that are closest to Monterey Road, a significant noise impact. However, provision of noise control barriers, as specified in Mitigation Measure NOI-1, would reduce noise impacts on private exterior areas to a less-than-significant level.

The existing and future noise exposures at the proposed minimum building setback of 140 feet from the centerline of Watsonville Road were calculated to be 60 and 63 dB DNL under existing and future traffic conditions, respectively. Future noise levels would exceed the City of Morgan Hill Noise Element standards for residential uses by 4 dB. Such levels would occur at certain courtyards proposed along the sides of the homes that are closest to Watsonville Road, a significant noise impact. However, provision of noise control barriers, as specified in Mitigation Measure NOI-1, would reduce noise impacts on private exterior areas to a less-than-significant level.

The proposed open space area in the center of the proposed development would be subject to noise levels of up to 58 dB DNL, which would be within the 60 dB DNL limit of the City of Morgan Hill Noise Element standards. Therefore, no noise mitigation would be required.

Interior Noise Exposure Levels. The exterior maximum noise levels at the most impacted proposed building setback from Monterey Road were calculated to range from 63.7 to 73.0 dBA. Therefore, the interior maximum noise limits would apply to project residences. The exterior maximum noise levels at the most impacted proposed building setback from Watsonville Road were calculated to range from 55.9 to 67.2 dBA. Therefore, the above interior maximum noise limits must be applied to project residences.

To determine the interior noise exposures in project living spaces, a 25-dB reduction was applied to the exterior noise exposures at the building setbacks to represent the attenuation provided by a typical building shell under a closed window condition. The closed window condition is used in this study as full-time ventilation is proposed to be provided that will allow the residents to keep their windows closed for noise control at all times without further specification. This condition also assumes the installation of standard dual-pane thermal insulating windows and HVAC equipment for all residential units.

The interior noise exposures in the living spaces closest to Monterey Road would be 41 dB DNL under existing and future traffic conditions. Thus, the noise exposures would meet the 45 dB DNL limit of the City of Morgan Hill Noise Element standards. The interior *maximum* noise levels in the most impacted living spaces closest to Monterey Road would range from 38.3 to 48.0 dBA. Thus, the interior maximum noise levels meet the 50-dBA limit for bedrooms and the 55-dBA limit for other living spaces.

The interior noise exposures in the living spaces closest to Watsonville Road would be 35 and 38 dB DNL under existing and future traffic conditions, respectively. Thus, the noise exposures would also meet the City's 45 dB DNL limit. The interior *maximum* noise levels in the most impacted living spaces closest to Watsonville Road would range from 30.9 to 42.2 dBA. Thus, the maximum interior noise levels would meet the 50-dBA limit for bedrooms and the 55-dBA limit for other living spaces.

Since interior spaces of all project units would meet applicable City noise limits, noise mitigation measures for the interior living spaces would not be required.

12b. Groundborne Noise and Vibration

The closest existing structures that would be subject to construction-related vibration effects would be structures located across Monterey Road as close as approximately 150 feet from the project site boundaries. At 25 feet, groundborne vibration and noise levels generated by most types of construction activities[31] would not exceed threshold levels for cosmetic damage to structures.[32] Operation of impact or vibratory pile drivers or large truck-mounted compactors can generate higher vibration levels than other construction equipment. At distances of less than 50 feet, vibration from operation of such equipment could disturb neighbors and cause cosmetic damage to adjacent structures. However, such equipment is not proposed to be used during project construction and no existing structures would be located within 50 feet of proposed construction activities. Therefore, construction-related vibration effects would have a less-than-significant vibration impact.

Groundborne noise refers to a condition where noise is experienced inside a building or structure as a result of vibrations produced outside of the building and transmitted as ground vibration between the source and receiver. Groundborne noise can be problematic in situations where the primary airborne noise path is blocked, such as in the case of a subway tunnel passing in close proximity to homes or other noise-sensitive structures. However, proposed noise and vibration-generating construction activities associated with the proposed project would involve techniques that primarily generate airborne noise and surface vibration. Any potential groundborne noise from construction activities would be imperceptible, and therefore would have no impact.

---

[31] Bulldozers, jackhammers, and loaded trucks typically generate vibration levels on the order of 0.003 to 0.089 inches per second, peak particle velocity (in/sec PPV) at 25 feet (U.S. Federal Transit Administration, 2006. *Transit Noise and Vibration Impact Assessment*. May. Available online at http://www.fta.dot.gov/12347_2233.html or http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf.

[32] The American Association of State Highway and Transportation Officials (AASHTO) recommends a threshold of 0.5 in/sec PPV for transient and intermittent vibrations.

12c. Long-term Noise Increases

Policy 7e of the Noise Element defines the following traffic-related noise level increases associated with new projects as significant, if: (a) the noise level increase is 5 dB DNL or greater, with a future noise level of less than 60 dB DNL; or (b) the noise level increase is 3 dB DNL or greater, with a future noise level of 60 dB DNL or greater. As indicated above, existing and future noise levels on both Monterey Road and Watsonville Road are 60 dB DNL or greater. Therefore, a 3 dB DNL noise increase or greater would be considered significant. In 2012, traffic levels on Monterey Road north of the site (near Vineyard Boulevard) were 21,723 ADT (average daily traffic), while 2011 traffic levels on Watsonville Road at the site were 9,200 ADT.[33] Under the extremely conservative and unlikely event that all project-related traffic would travel on Monterey Road and Watsonville Road to access the site, the project would generate approximately 352 trips per day on Monterey Road and Watsonville Road, which would constitute traffic increases of 2% and 4%, respectively. Such traffic increases on either of these roads would result in a noise increase of less than 1 dB, which would be less than significant.

12d. Short-Term Noise Increases

Chapter 8.28 of the Morgan Hill Municipal Code[34] prohibits construction activities (including operation of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other appliance) between 8:00 p.m. and 7:00 a.m., Monday through Friday, and between 6:00 p.m. and 9 a.m. on Saturdays. Construction activities may not occur on Sundays or federal holidays. The Morgan Hill Municipal Code does not specify any short-term noise level limits.

Project construction would result in temporary short-term noise increases due to the operation of heavy equipment. Construction equipment generates noise levels in the range of 75 to 95 dBA (L_{eq}) at 30 feet from the source. The potential for construction-related noise increases to adversely affect nearby residential receptors would depend on the location and proximity of construction activities to these receptors. Temporary disturbance (e.g., speech interference) can occur if the noise level in the interior of a building exceeds 45 to 60 dBA.[35] To maintain such interior noise levels, exterior noise levels at the closest residences (with windows closed) should not exceed 80 dBA and this exterior noise level is used as a significance threshold. The closest existing residential receptors are located approximately 450 feet to the west (across Calle Sueno) and 150 feet to the east across Watsonville Road. At 450 feet, construction noise would range from 51 to 71 dBA, and such noise increases would not exceed the 80-dBA threshold. At 150 feet, noise levels would range from 61 to 81 dBA, which would slightly exceed this threshold when the noisiest equipment is operated along the eastern project boundary. Given the limited duration of such activities at this location, enforcement of time restrictions specified in the Morgan Hill Noise Ordinance would be adequate to maintain construction-related noise at less-than-significant levels. If residences are constructed on the property to the northwest during the interim, they could be located much closer to project construction activities than existing residences and construction noise would likely exceed the 80-dBA threshold. Therefore, if residences on the property to the northwest are constructed and occupied at the time of project construction, implementation of noise controls specified in Mitigation Measure NOI-2 would reduce this potential impact to less than significant. Although construction-related

---

[33] Kalibrate Technologies (formerly KSS Fuels), *U.S. Daily Traffic Counts on Google Earth,* Accessed on November 12, 2015.

[34] Available online at http://search.municode.com/html/16502/index.html.

[35] In indoor noise environments, the highest noise level that permits relaxed conversation with 100% intelligibility throughout the room is 45 dBA. Speech interference is considered to become intolerable when normal conversation is precluded at 3 feet, which occurs when background noise levels exceed 60 dBA (U.S. Environmental Protection Agency, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Condensed Version),* 1974).

noise increases at nearby existing residences would be less than significant, these controls are also recommended to minimize the potential for annoyance at existing nearby residences.

12e. Airport-Related Issues

The project site is not located within an airport land use plan. There is no public airport, public use airport, or private airstrip located within two miles of the project site. The proposed project would not expose people residing or working in the area to excessive noise levels. Therefore, there would be no airport-related noise impact.

Mitigation Measures – Noise and Vibration (NOI)

To reduce the significant noise impacts identified above for project residences located along Watsonville Road, the following noise attenuation measures will be incorporated into the project design to ensure that acceptable exterior and interior noise levels are achieved, reducing identified impacts to a less-than-significant level:

NOI-1: ***Implement Acoustical Report Recommendations.*** *To achieve compliance with the 60 dB DNL limit of the City of Morgan Hill Noise Element standards for the noise impacted courtyards at the sides of certain buildings exposed to Monterey Road or Watsonville road traffic noise, the following noise control barrier shall be required:*

- *Construct six-foot high acoustically-effective barriers at the courtyards at the sides of the buildings shown on Figure 1 of Attachment 6. The barrier returns shall be connected air-tight to the sides of the homes. The barrier height is in reference to the nearest building pad elevation.*

  To achieve an acoustically-effective barrier, the barrier must be constructed air-tight, i.e., without cracks, gaps or other openings, and must provide for long term durability. Barriers can be constructed of masonry, wood, concrete, stucco, earth berm or a combination thereof and must have a minimum surface weight of 2.5 pounds per square foot. If wood fencing is used, homogeneous sheet materials are preferable to conventional wood fencing as the latter has a tendency to warp and form openings with age. However, high quality, air-tight, tongue-and-groove, board and batten or shiplap construction can be used. All connections with posts, pilasters or building shells must be sealed air-tight. No openings are permitted between the upper barrier components and the ground. Gates may be incorporated into the barriers, however, they must be of the same weight material as the main barrier and must seal tight when closed. The gap at the bottom of the gate shall be less than one inch.

NOI-2: ***Implement Construction Noise Controls.*** *The following measures shall be required if future residences on the property immediately to the northwest are constructed and occupied at the time of project construction. However, these measures are recommended in any case to help minimize the potential for annoyance at nearby residential receptors:*

- *Quiet or "new technology" equipment should be used wherever feasible. All internal combustion engines used at the project site should be equipped with mufflers (as recommended by the vehicle manufacturer). In addition, all equipment should be in good mechanical condition so as to minimize noise created by faulty or poorly maintained engine, drive-train and other components.*
- *Noisy operations shall be scheduled for the daytime hours (7:00 a.m. to 8:00 p.m., Monday through Friday and 9:00 a.m. to 6:00 pm. on Saturdays) in accordance with time limits specified in the City of Morgan Hill Zoning Ordinance.*

- *All diesel-powered equipment should be located more than 200 feet from any residence to the extent feasible if the equipment is to operate for more than several hours per day.*
- *Locate stockpiled materials so that they can help block construction noise at nearby sensitive receptors.*
- *Noise reduction benefits could also be achieved by appropriate selection of equipment utilized for various operations (subject to equipment availability and cost considerations). The following measures are recommended to reduce noise impacts on nearby residents:*
  - *Earth Removal: Use scrapers as much as possible for earth removal, rather than the noisier loaders and hauling trucks.*
  - *Backfilling: Use a backhoe for backfilling, as it is less costly and quieter than either dozers or loaders.*
  - *Ground Preparation: Use a motor grader rather than a bulldozer for final grading.*
  - *Building Construction: Powers saws should be shielded or enclosed where practical to decrease noise emissions. Nail guns should be used where possible as they are less noisy than manual hammering.*
  - *Construction Phasing: Construct buildings or other significant structures at the site perimeter to help shield existing sensitive receptors from noise generated on the site.*

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
13. Population and Housing - Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

13a. Growth-Inducement Impacts

In November 2004, the Measure C initiative was approved by voters, which extended the City's Residential Development Control System (RDCS) until 2020. Measure C caps the population at 48,000 for the year 2020, and requires development allotments for all residential development. The project applied for and received 45 RDCS building allotments (39 FY2015-2016; 6 FY2016-2017), however, based on the current proposed project plans, has reduced the project to 37 units on the 9.35 acre site. These allotments are part of the approximately 250 RDCS allotments that are allocated each year to limit residential growth to ensure that the population cap is not reached until 2020. Therefore, the effects of the growth induced by the project proposal would be less than significant since new population is already considered as part of the RDCS allocation process and planned for and City's planned growth as described and analyzed in the City's General Plan.

13b, 13c. Displacement of Housing or Residents

The subject property is currently vacant. Therefore, no displacement of any existing residences would occur as a result of project development. The proposed project would provide 37 additional residential units on the project site to serve the community's future housing needs.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
14. Public Services -				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☐	☒

14a. Public Services

The City of Morgan Hill contracts with CAL FIRE (State Department of Forestry and Fire Protection) for fire protection services. There are three fire stations located within the city boundaries: El Toro Station, located at 18300 Old Monterey Road; Dunne-Hill Station, located at 2100 Dunne Avenue; and the CAL FIRE station at 15670 Monterey Road. The project site is located approximately 0.4 mile south of the CAL FIRE station, approximately 2.7 miles south of the El Toro station, and approximately 3.5 miles southwest of the Dunne-Hill Station. With the project's close proximity to the CAL FIRE station, the project site is within the five-minute response boundary of the CAL FIRE station.

The Morgan Hill Police Department provides police protection services to incorporated areas in the project vicinity. The project site is located within the Department's normal patrol routes due to other nearby residential development located within the City.

The Morgan Hill Unified School District (MHUSD) operates public education facilities that serve the project site and surrounding area. The City of Morgan Hill is served by eight elementary schools, two middle schools, two high schools, one continuation school, and one community adult school. Current student population in the District is 9,000[36] pupils. The existing school facilities have sufficient available capacity to accommodate the approximately 26 students[37] that would be generated by the proposed project.[38] Students from the proposed project would attend Paradise Valley Elementary School, Britton Middle School, and Sobrato High School.

[36] California Department of Education, Educational Demographics Unit, 2015. http://dq.cde.ca.gov/dataquest/dataquest.asp

[37] Based upon a MHUSD student generation rate of 0.7 K-12 students per household.

[38] Ms. Anessa Espinosa, Facilities Director, MHUSD, telephone communication November 13, 2015.

The project would incrementally increase demand for fire and police protection services, and generate new students at local schools. Both the City of Morgan Hill and Morgan Hill Unified School District collect development impact fees to help pay for fire and police protection capital improvements and finance additional school facilities. In general, payment of these fees is considered adequate to mitigate the project's impact on these services to a less-than-significant level. However, the City's Residential Development Control System provides more direct assurance that any new residential development, including future residential development on the project site, would not cause significant adverse impacts on these and other public services. Development allotments are awarded based on the number of points scored for all development proposals for each year and the point scale takes into account the impact of the proposed development on the following public services: schools, fire and police protection, traffic and other municipal services. Therefore, development allotments are not awarded to any development proposals until adequate services are available.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
15. Recreation -				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☒	☐

15a. Demand for Recreational Facilities

Proposed subdivision of the 9.35-acre project site would ultimately allow new residential development, which in turn would induce population growth in the Morgan Hill area. Project-related population increases would incrementally increase demand on existing recreational facilities. However, the City's Residential Development Control System provides assurance that any new residential development, including future residential development on the project site, would not cause significant adverse impacts on recreational facilities or on public services and utilities. Development allotments are awarded based on the number of points scored for all development proposals for each year, and the point scale takes into account the impact of the proposed development on recreational facilities.

15b. Impacts Related to Construction of Recreational Facilities

The project would include a 0.27-acre open space area within the north end of the loop road. Construction of any future recreational facilities in this open space area would not have a significant effect on the environment. Therefore, the impact related to the construction project recreational facilities would be less than significant.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
16. Transportation/Traffic - Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

16a, 16b, 16e. Impacts on the Circulation System, Conflicts with Congestion Management Program, and Traffic Hazards

Regional access to the project site is provided by State Highway 101 to the east and Tennant Avenue to the north. Local access to the site is provided by Monterey Road and Watsonville Road. Monterey Road extends along the site's eastern boundary, while Watsonville Road extends along the site's southern boundary.

The proposed 37-unit residential project is expected to generate a total of 352 daily trips with 28 trips during the AM peak hour and 37 trips during the PM peak hour. Due to the small size of the proposed project, the impacts on adjacent and nearby roads and intersection are expected to be minimal. There is adequate available traffic capacity on adjacent and nearby streets and intersection to accommodate project-related traffic increases, and no significant impacts are anticipated. The Monterey Road/Watsonville Road intersection currently operates acceptably at LOS B during the AM and PM peak hours, and is projected to operate acceptably at LOS C under future (2030) conditions.[39] Given the project's small size, project-related traffic increases would have a less-than-significant impact on traffic capacity in the project area and the project's contribution to future (2030) cumulative traffic increases would be less than cumulatively considerable.

[39] City of Morgan Hill, *Initial Study for the Monterey-South of Watsonville Project*. Tables 4.16-4, 4.16-9, and 4.16-10 on pp. 116, 127, and 128. October 2011.

According to guidelines published by the Santa Clara Valley Transportation Authority (VTA),[48] the congestion management agency for Santa Clara County, a detailed traffic study is required only if the project is estimated to generate 100 or more peak hour trips. The City has adopted its own guidelines that are generally consistent with the VTA. For projects generating less than 100 peak hour trips, such small increases in traffic are considered less than significant.

The project would provide 74 covered parking spaces (two covered spaces per unit) and 15 off-street parking spaces, which would meet the number of spaces required by City code: a minimum of two covered parking spaces per dwelling unit and one guest parking space for each four dwelling units.

Additionally, some on-street parking (i.e. parallel parking) will be provided along the private streets within the project as well as along the new public street at the project entrance off of Monterey Road.

Site access and internal streets on the project site would be required to conform to City design standards (for both public and private streets), thereby ensuring the use of approved transportation system design elements as part of the project plans. City review of the project plans indicates that the proposed street layout meets City street standards. A project transportation system design that conforms to City standards would minimize the potential for traffic hazards through the application of standard, uniform design elements for local public streets.

16c. Air Traffic Patterns

The project site is not located within an airport land use plan, nor is there a public airport, public use airport, or private airstrip located in the project vicinity. The San Martin Airport, approximately 2.7 miles to the southeast of the project site, is the closest airport to the property. Therefore, the project would have no impact on air traffic patterns, would not directly increase air traffic levels, nor would there be any change in location that results in substantial safety risks.

16e. Emergency Access

The project site has frontage on both Monterey Road and Watsonville Road, but access to project units would be restricted to a public street that would extend along the site's northern boundary and connect to Monterey Road. This street would extend to the northern project boundary for future connection with a planned street to the north of the site. This road stub would provide secondary access for planned residential development on the property to the north of the site. An emergency vehicle access (EVA) is proposed at the east end of the Private Drive B between Lots 6 and 7, and it would provide secondary emergency access to the project development. The internal loop drives proposed for internal circulation to all project units would also provide secondary access routes within the development for emergency vehicles. With such an access configuration, there would be no impact on emergency access.

16f. Conflicts with Alternative Transportation (Pedestrian, Bicycle, and Transit Access)

The project site's frontage along the west side of Monterey Road would include provision of a sidewalk. Although sidewalks are discontinuous along this section of Monterey Road, the provision of these sidewalks would contribute to improved pedestrian access in the project area. A sidewalk would also be provided along the south side of the new public street proposed along the site's northern boundary (space for a future sidewalk is proposed along the north side), providing pedestrian access from the project's private loop drives (no sidewalks are proposed) to Monterey Road. An EVA proposed at the east end of Private Drive B would also provide pedestrian access to the sidewalk on Monterey Road.

The project site is located adjacent to the Monterey & Watsonville bus stop on the VTA Local Bus Route 68 on Monterey Road. Local Route 68 is a regional bus route connecting the Gilroy Transit center to the San Jose Diridon Transit Center. Route 68 passes through Morgan Hill along Monterey Road and has 15- to 60-minute headways on weekdays and weekend, running between 4:00 a.m. and 1:30 a.m. This bus route would connect project residents with the San Martin Caltrain Station (1.9 miles to the south), the

Morgan Hill Caltrain Station (2.5 miles to the north), as well as downtown Morgan Hill and San Jose to the north. The project would also include the addition of

Proposed sidewalks in addition to the site's proximity to the West Little Llagas Creek Bike and Walking Trail (approximately 300 feet to the west) and adjacent VTA bus stop would support alternative transportation modes. Consequently, the proposed project would support rather than conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities (no impact).

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
17. Utilities and Service Systems – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

17a, 17e. Wastewater Facilities and Service

The South County Regional Wastewater Authority operates the Gilroy – Morgan Hill Wastewater Treatment Plant. Wastewater from both cities is collected and treated at this facility in Gilroy. The wastewater treatment plant was built in 1994 and treats up to 8.5 million gallons per day (gpd) during dry weather and provides wet weather treatment for up to 11 million gpd.

The South County Regional Wastewater Authority (SCRWA) evaluated recent and future wastewater flows as part of its planning process for facilities expansion. The Agency's engineering consultant, MWH, projected dry and wet weather flows for the wastewater treatment facility in 2013.[40] Future flows were estimated using both projected permit issuances and projected populations. Based on the projections by permits, the current facility capacity of 8.5 mgd would be reached in 2021 and the Urban Growth Boundary (UGB) Average Dry Weather Flow (ADWF) of 9.6 mgd would be reached in 2027. Based on

[40] MWH Memorandum, 2013. Technical Memorandum –SCRWA Wastewater Flow Projections (2012). November 20.

the population projections, the current facility capacity would be reached in 2020 and the UGB ADWF would be reached in 2026. For both projections, the facility capacity is predicted to exceed capacity slightly later than the 2010 analysis of flow projections. Both the projections based on permitting data and population data would be considered in planning future SCRWA facilities to ensure that the necessary permitted development and population are available to provide financial support for required facilities expansion. The SCRWA plans for treatment plant improvements beyond 2016 include expansion of the membrane bioreactor facility and improvements to the solids dewatering facilities. Both the cities of Gilroy and Morgan Hill have growth control systems in place which limit unexpected increases in sewage generation.

There is an 24-inch municipal sewer line in Monterey Road currently serving residential and commercial development in the project area. The City has confirmed that the existing sewer main can adequately serve the wastewater service demands of the proposed project (**Figure 10**).

17b, 17d. Water Facilities and Service

The project site is vacant and currently requires no domestic water use. A 10-inch municipal water line is located in Monterey Road at the site and the proposed project would be connected to the existing water line by an 8-inch water line to serve the site with domestic and fire protection water services.

The City's 2010 Urban Water Management Plan (UWMP) provides a framework for the evaluation of water supply and demand for the community, and allows the City to provide long-range planning to ensure adequate supplies of water for the City. The UWMP also assists the City in developing programs to manage water use in a comprehensive manner to safeguard municipal water supplies. The City is in the process of updating the current UWMP and will complete the update process by mid-2016.

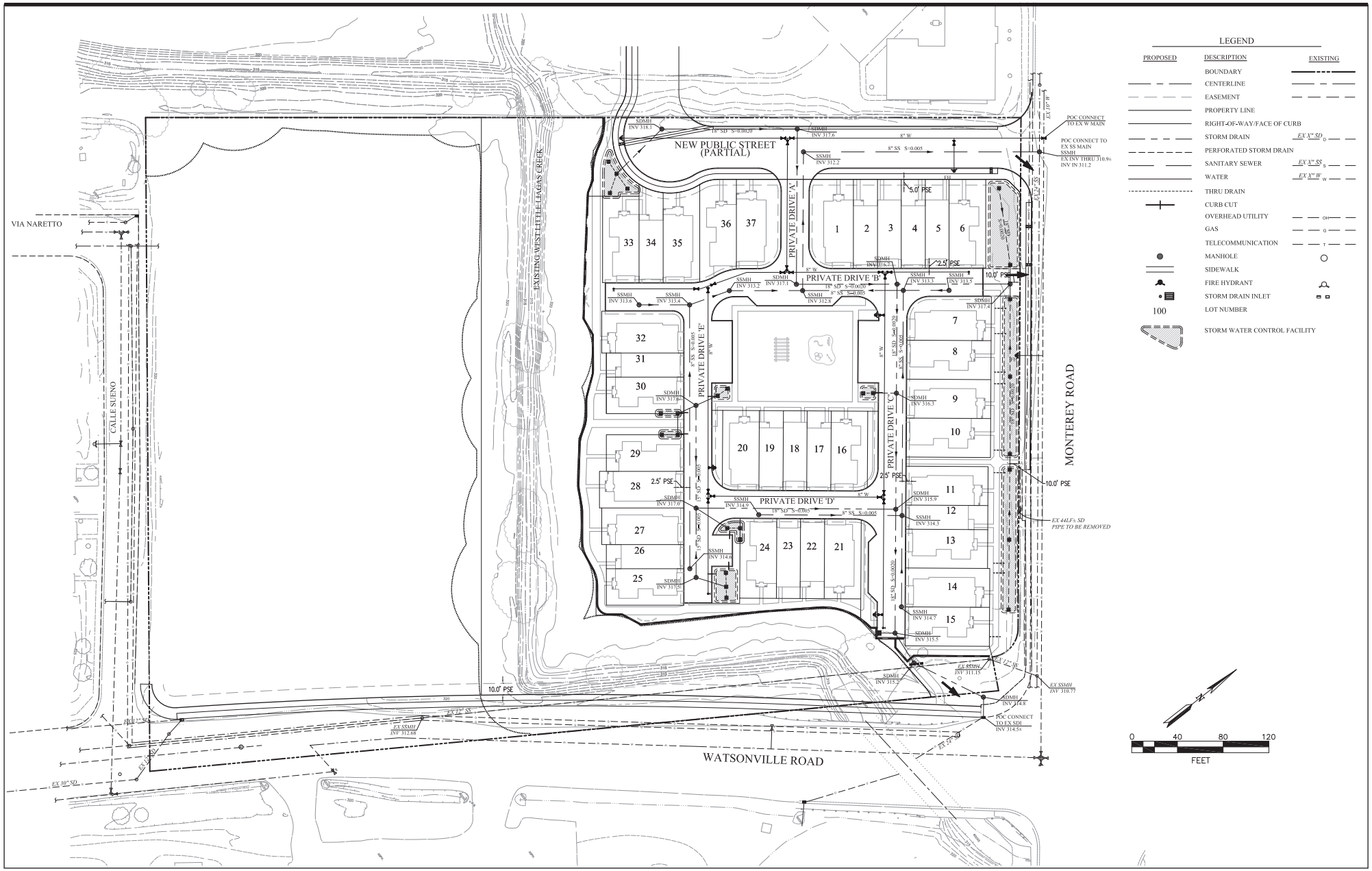
The City of Morgan Hill receives its water from two groundwater sources: the Coyote Valley subarea of the Santa Clara Subbasin and Llagas Subbasin, part of the Gilroy-Hollister Basin. Morgan Hill is situated over both the Llagas and Santa Clara groundwater subbasins. All subbasins within Santa Clara County are managed and administered by the Santa Clara Valley Water District.

Morgan Hill provides potable water service to its residential, commercial, industrial, and institutional customers within the City limits. The City's municipal water system extracts water from the underground aquifers via a series of groundwater wells distributed along the valley floor and supplies thirteen pressure zones. Water is then pumped up to service the five higher-pressure zones on both east and west sides of the valley via booster stations.

The City's water system facilities include 17 groundwater wells, 13 potable water storage tanks, 10 booster stations, and over 160 miles of pressured piping ranging from 2 to 14 inches in diameter. Gate valves and pressure-reducing valves are used to isolate or regulate flow between pressure zones. Currently, the City has an operational storage capacity equivalent to approximately 1.25 days of average water use.

The 2010 UWMP has determined that the base daily per capita water use for Morgan Hill is 198 gallons per capita per day. The California Department of Finance, Demographic Research Division,[41] provides an estimate of 3.11 persons per household for the City of Morgan Hill. Based on this household population rate and the City's per capita per day water use, the proposed project of 37 net new residences on the project site would require 22,784 gallons of water per day, or approximately 8.32 million gallons per year.

[41] E-5 Population and Housing Esitmates for Cities, Counties, and the State, 2011 – 2015 is available at: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php



Source: Ruggeri Jensen Azar (2015)

The City of Morgan Hill currently has seventeen wells drawing from the Llagas Subbasin and Coyote Valley subarea with a maximum summer pumping capacity of 18,054 AF per year; however, the City pumps only a fraction of this capacity. Since the basin is not adjudicated, the total supply available to the City is its maximum pumping capacity. Although this is available to the City, Morgan Hill does not intend to pump the full capacity available, and continues to encourage water conservation to its customers. Based upon the analysis provided by the City's UWMP, the City has sufficient capacity to provide water services to the proposed project.

17c. Stormwater Drainage Facilities

At present, storm precipitation percolates on the project site or drains from the project site directly into the Little Llagas Creek drainage channel along the eastern perimeter of the project site (for more discussion on storm drainage, please see Section 9, Hydrology and Water Quality). The storm runoff from proposed project would be directed to bioretention basins and bioswales for on-site treatment and infiltration, as well as drainage to the municipal storm drain system. For more discussion on storm drainage, please see Section 9, *Hydrology and Water Quality*.

Per the implementation of the Stormwater Polution Prevention Program and other drainage standards codified in Chapter 18.71 – Post Construction Stormwater Pollution Prevention of the Morgan Hill Municipal Code and implemented by the City, the project should not significantly increase storm water flows into the existing stormwater drainage system. The project will be required to minimally retain all water from the 85th percentile of rainfall events (approximately two to five year storm events) on site; therefore, during 85 percent of the rainfall events, the existing storm drain system would not be impacted by the project. Furthermore, the on-site systems (retention basins) will be required to be designed to detain a volume of water up to a 25-year storm event while releasing water at a rate reflective of the 10-year predevelopment flow. This design limits storm water flows off-site to no more than 10-year predevelopment flows. The existing public storm water system is already designed to convey a 10 - year storm event; therefore, the project should not significantly contribute to any additional flooding during the most frequent events. The final drainage system design for the project will be subject to review and approval by the City of Morgan Hill Public Works Department, who will confirm that the proposed drainage system for the project is consistent with the City's Storm Drainage Master Plan and standard stormwater related conditions of approval.

As described in Section 9, *Hydrology and Water Quality*, the project will incorporate mitigation measures and BMPs to avoid and minimize impacts to water quality from erosion during construction activities. With incorporation of mitigation measures and BMPs, the project will not result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which may result in significant environmental effects.

17f, 17g. Solid Waste

Recology South Valley (RSV) provides solid waste collection service to the City of Morgan Hill. RSV transports solid waste from the city to its transfer station in San Martin for sorting of recyclables. Solid waste not accepted at the transfer station is trucked to the John Smith Road Landfill in Hollister.

The project would incrementally increase demands on these services and public facilities. It is anticipated that the project would contribute approximately 18.3 tons of solid waste per year to the waste stream generated by the City [42] In the most recent reporting year, Morgan Hill had a landfill waste diversion rate of 62 percent, exceeding the 50 percent standard set by AB 939. The City of Morgan Hill has an RDCS process that will ensure that future development on the project site will be consistent with the

[42] CalRecycle, 2015. Residential Waste Disposal Rates. Accessed at: http://www.calrecycle.ca.gov/WasteChar/ResDisp.htm

growth rate in the general plan. Development of the project site with 14 net new residential dwelling would not exceed the City's planned solid waste demand that serves as the basis for the City's long-term utilities and service system infrastructure planning.

The project would incrementally increase demands on the above-listed public services and facilities, but it is anticipated that the project will be responsible for extending these facilities onto the project site and completing necessary improvements to meet fire flow requirements and any other off-site utility improvements, if needed. In addition, the City's Residential Development Control System provides more direct assurance that any new residential development, including future residential development on the project site, would not cause significant adverse impacts on the level of service of utilities for current and future residents.

Issues (and Supporting Information Sources)	Potentially Significant Impact	Less than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
18. Mandatory Findings of Significance -				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

18a, 18c. Significant Impacts on the Natural and Man-Made Environments

With mitigation measures specified above in Sections 3 (Air Quality) and 12 (Noise), the proposed project would not degrade the quality of the environment. As indicated in the above discussion, the project also would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

18b. Cumulative Impacts

The proposed project's action entailing subdivision of the 9.35-acre project parcel into 37 residential lots would not cause environmental impacts that would be cumulatively considerable when evaluated in conjunction with other current or probable projects. In November 2004, the Measure C initiative was approved by voters, which extended the City's Residential Development Control System until 2020. Measure C caps the population at 48,000 for the year 2020, and requires development allotments for all residential development. The project's contribution to cumulative growth effects on the city would be less than cumulatively considerable since new population could not occur until development allotments are

obtained for the project site. These allotments ensure that growth induced by the project would be within the City's planned growth level.

ATTACHMENT 1

AIR QUALITY

CALEE MOD OUTPUTS

Young Project

San Francisco Bay Area Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	37.00	Dwelling Unit	2.31	37,000.00	106
Other Asphalt Surfaces	14.30	1000sqft	0.33	14,295.00	0
Other Non-Asphalt Surfaces	4.10	1000sqft	0.09	4,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Demo: 20 days, Grading: 30 days, Construction: 220 days, Paving: 30 days

Off-road Equipment - Demo: 1 concrete saw, 1`dozer, 3 loader/backhoes

Off-road Equipment - Grading: 1 grader, 1 dozer, 2 loader/backhoes

Off-road Equipment - Construction: 1 crane, 2 forklifts, 1 gen set, 1 loader/backhoe, 3 welders

Off-road Equipment - Paving: 1 cement mixer, 1 paver, 1 paving equipment, 2 rollers, 1 loader/backhoe

Grading - 19800 CY Earthworks

Demolition -

Construction Off-road Equipment Mitigation - DPF level 3

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstructionPhase	NumDays	10.00	35.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	PhaseEndDate	4/18/2018	3/7/2018
tblConstructionPhase	PhaseEndDate	3/10/2017	3/15/2017
tblConstructionPhase	PhaseStartDate	3/1/2018	1/18/2018
tblConstructionPhase	PhaseStartDate	1/28/2017	2/2/2017
tblGrading	AcresOfGrading	15.00	3.00
tblGrading	MaterialImported	0.00	19,800.00
tblProjectCharacteristics	OperationalYear	2014	2017

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	4.3859	49.5459	35.8440	0.0836	7.7346	1.8389	9.5735	3.7516	1.6917	5.4433	0.0000	8,336.9111	8,336.9111	0.6938	0.0000	8,351.4799
2018	47.0420	21.2441	17.8967	0.0305	0.3672	1.2618	1.6290	0.0983	1.2091	1.3074	0.0000	2,785.9222	2,785.9222	0.5703	0.0000	2,797.8973
Total	**51.4279**	**70.7900**	**53.7407**	**0.1141**	**8.1017**	**3.1007**	**11.2025**	**3.8499**	**2.9008**	**6.7507**	**0.0000**	**11,122.8333**	**11,122.8333**	**1.2640**	**0.0000**	**11,149.3773**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	4.3859	49.5459	35.8440	0.0836	3.9509	1.0361	4.4680	1.7185	1.0079	2.1941	0.0000	8,336.9111	8,336.9111	0.6938	0.0000	8,351.4799
2018	47.0420	21.2441	17.8967	0.0305	0.3672	0.8975	1.2647	0.0983	0.8740	0.9723	0.0000	2,785.9222	2,785.9222	0.5703	0.0000	2,797.8973
Total	**51.4279**	**70.7900**	**53.7407**	**0.1141**	**4.3181**	**1.9336**	**5.7327**	**1.8168**	**1.8819**	**3.1664**	**0.0000**	**11,122.8333**	**11,122.8333**	**1.2640**	**0.0000**	**11,149.3773**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**46.70**	**37.64**	**48.83**	**52.81**	**35.13**	**53.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	18.2192	0.7266	50.6242	0.1093		7.4347	7.4347		7.4344	7.4344	994.9733	508.2652	1,503.2385	3.7798	0.0260	1,590.6597
Energy	0.0213	0.1819	0.0774	1.1600e-003		0.0147	0.0147		0.0147	0.0147		232.2516	232.2516	4.4500e-003	4.2600e-003	233.6650
Mobile	0.8964	1.8754	8.4289	0.0184	1.2560	0.0257	1.2817	0.3360	0.0236	0.3596		1,557.4886	1,557.4886	0.0616		1,558.7820
Total	**19.1368**	**2.7840**	**59.1306**	**0.1288**	**1.2560**	**7.4752**	**8.7311**	**0.3360**	**7.4728**	**7.8088**	**994.9733**	**2,298.0053**	**3,292.9786**	**3.8458**	**0.0302**	**3,383.1067**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	18.2192	0.7266	50.6242	0.1093		7.4347	7.4347		7.4344	7.4344	994.9733	508.2652	1,503.2385	3.7798	0.0260	1,590.6597
Energy	0.0213	0.1819	0.0774	1.1600e-003		0.0147	0.0147		0.0147	0.0147		232.2516	232.2516	4.4500e-003	4.2600e-003	233.6650
Mobile	0.8964	1.8754	8.4289	0.0184	1.2560	0.0257	1.2817	0.3360	0.0236	0.3596		1,557.4886	1,557.4886	0.0616		1,558.7820
Total	**19.1368**	**2.7840**	**59.1306**	**0.1288**	**1.2560**	**7.4752**	**8.7311**	**0.3360**	**7.4728**	**7.8088**	**994.9733**	**2,298.0053**	**3,292.9786**	**3.8458**	**0.0302**	**3,383.1067**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Grading	Grading	2/2/2017	3/15/2017	5	30	
3	Building Construction	Building Construction	3/16/2017	1/17/2018	5	220	
4	Paving	Paving	1/18/2018	2/28/2018	5	30	
5	Architectural Coating	Architectural Coating	1/18/2018	3/7/2018	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 74,925; Residential Outdoor: 24,975; Non-Residential Indoor: 27,593; Non-Residential Outdoor: 9,198 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Paving	Pavers	1	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Paving	Paving Equipment	1	8.00	130	0.36
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	10.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	2,475.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	34.00	7.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1070	0.0000	0.1070	0.0162	0.0000	0.0162			0.0000			0.0000
Off-Road	2.7216	26.5855	20.8712	0.0245		1.6062	1.6062		1.5022	1.5022		2,457.4682	2,457.4682	0.6235		2,470.5620
Total	**2.7216**	**26.5855**	**20.8712**	**0.0245**	**0.1070**	**1.6062**	**1.7132**	**0.0162**	**1.5022**	**1.5184**		**2,457.4682**	**2,457.4682**	**0.6235**		**2,470.5620**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0100	0.1293	0.0992	3.7000e-004	8.7100e-003	1.7200e-003	0.0104	2.3900e-003	1.5800e-003	3.9600e-003		37.2034	37.2034	2.7000e-004		37.2091
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0471	0.0565	0.6596	1.5100e-003	0.1226	9.4000e-004	0.1235	0.0325	8.7000e-004	0.0334		121.9017	121.9017	5.9400e-003		122.0263
Total	**0.0571**	**0.1859**	**0.7588**	**1.8800e-003**	**0.1313**	**2.6600e-003**	**0.1340**	**0.0349**	**2.4500e-003**	**0.0373**		**159.1051**	**159.1051**	**6.2100e-003**		**159.2354**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0417	0.0000	0.0417	6.3200e-003	0.0000	6.3200e-003			0.0000			0.0000
Off-Road	2.7216	26.5855	20.8712	0.0245		0.5016	0.5016		0.4860	0.4860	0.0000	2,457.4682	2,457.4682	0.6235		2,470.5620
Total	**2.7216**	**26.5855**	**20.8712**	**0.0245**	**0.0417**	**0.5016**	**0.5433**	**6.3200e-003**	**0.4860**	**0.4923**	**0.0000**	**2,457.4682**	**2,457.4682**	**0.6235**		**2,470.5620**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0100	0.1293	0.0992	3.7000e-004	8.7100e-003	1.7200e-003	0.0104	2.3900e-003	1.5800e-003	3.9600e-003		37.2034	37.2034	2.7000e-004		37.2091
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0471	0.0565	0.6596	1.5100e-003	0.1226	9.4000e-004	0.1235	0.0325	8.7000e-004	0.0334		121.9017	121.9017	5.9400e-003		122.0263
Total	**0.0571**	**0.1859**	**0.7588**	**1.8800e-003**	**0.1313**	**2.6600e-003**	**0.1340**	**0.0349**	**2.4500e-003**	**0.0373**		**159.1051**	**159.1051**	**6.2100e-003**		**159.2354**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2028	0.0000	6.2028	3.3330	0.0000	3.3330			0.0000			0.0000
Off-Road	2.6973	28.1608	18.9679	0.0206		1.5550	1.5550		1.4306	1.4306		2,104.5737	2,104.5737	0.6448		2,118.1153
Total	**2.6973**	**28.1608**	**18.9679**	**0.0206**	**6.2028**	**1.5550**	**7.7578**	**3.3330**	**1.4306**	**4.7636**		**2,104.5737**	**2,104.5737**	**0.6448**		**2,118.1153**

3.3 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6523	21.3416	16.3687	0.0619	1.4375	0.2832	1.7207	0.3936	0.2604	0.6540		6,138.5669	6,138.5669	0.0444		6,139.4982
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0362	0.0435	0.5074	1.1600e-003	0.0943	7.2000e-004	0.0950	0.0250	6.7000e-004	0.0257		93.7705	93.7705	4.5700e-003		93.8664
Total	**1.6886**	**21.3851**	**16.8761**	**0.0630**	**1.5318**	**0.2839**	**1.8157**	**0.4186**	**0.2611**	**0.6797**		**6,232.3374**	**6,232.3374**	**0.0489**		**6,233.3646**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4191	0.0000	2.4191	1.2999	0.0000	1.2999			0.0000			0.0000
Off-Road	2.6973	28.1608	18.9679	0.0206		0.2333	0.2333		0.2146	0.2146	0.0000	2,104.5737	2,104.5737	0.6448		2,118.1153
Total	**2.6973**	**28.1608**	**18.9679**	**0.0206**	**2.4191**	**0.2333**	**2.6523**	**1.2999**	**0.2146**	**1.5145**	**0.0000**	**2,104.5737**	**2,104.5737**	**0.6448**		**2,118.1153**

3.3 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6523	21.3416	16.3687	0.0619	1.4375	0.2832	1.7207	0.3936	0.2604	0.6540		6,138.5669	6,138.5669	0.0444		6,139.4982
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0362	0.0435	0.5074	1.1600e-003	0.0943	7.2000e-004	0.0950	0.0250	6.7000e-004	0.0257		93.7705	93.7705	4.5700e-003		93.8664
Total	**1.6886**	**21.3851**	**16.8761**	**0.0630**	**1.5318**	**0.2839**	**1.8157**	**0.4186**	**0.2611**	**0.6797**		**6,232.3374**	**6,232.3374**	**0.0489**		**6,233.3646**

3.4 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3275	22.8585	16.2492	0.0249		1.4621	1.4621		1.3998	1.3998		2,334.8503	2,334.8503	0.5189		2,345.7479
Total	**3.3275**	**22.8585**	**16.2492**	**0.0249**		**1.4621**	**1.4621**		**1.3998**	**1.3998**		**2,334.8503**	**2,334.8503**	**0.5189**		**2,345.7479**

3.4 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0720	0.6081	0.7497	1.6700e-003	0.0465	9.0100e-003	0.0556	0.0133	8.2900e-003	0.0216		164.5836	164.5836	1.2600e-003		164.6100
Worker	0.1232	0.1478	1.7251	3.9500e-003	0.3206	2.4600e-003	0.3231	0.0850	2.2600e-003	0.0873		318.8198	318.8198	0.0155		319.1458
Total	**0.1951**	**0.7559**	**2.4748**	**5.6200e-003**	**0.3672**	**0.0115**	**0.3786**	**0.0983**	**0.0106**	**0.1089**		**483.4033**	**483.4033**	**0.0168**		**483.7557**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3275	22.8585	16.2492	0.0249		1.0246	1.0246		0.9974	0.9974	0.0000	2,334.8503	2,334.8503	0.5189		2,345.7479
Total	**3.3275**	**22.8585**	**16.2492**	**0.0249**		**1.0246**	**1.0246**		**0.9974**	**0.9974**	**0.0000**	**2,334.8503**	**2,334.8503**	**0.5189**		**2,345.7479**

3.4 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0720	0.6081	0.7497	1.6700e-003	0.0465	9.0100e-003	0.0556	0.0133	8.2900e-003	0.0216		164.5836	164.5836	1.2600e-003		164.6100
Worker	0.1232	0.1478	1.7251	3.9500e-003	0.3206	2.4600e-003	0.3231	0.0850	2.2600e-003	0.0873		318.8198	318.8198	0.0155		319.1458
Total	**0.1951**	**0.7559**	**2.4748**	**5.6200e-003**	**0.3672**	**0.0115**	**0.3786**	**0.0983**	**0.0106**	**0.1089**		**483.4033**	**483.4033**	**0.0168**		**483.7557**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9004	20.5600	15.6637	0.0249		1.2511	1.2511		1.1992	1.1992		2,317.2089	2,317.2089	0.4980		2,327.6664
Total	**2.9004**	**20.5600**	**15.6637**	**0.0249**		**1.2511**	**1.2511**		**1.1992**	**1.1992**		**2,317.2089**	**2,317.2089**	**0.4980**		**2,327.6664**

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0644	0.5510	0.6824	1.6600e-003	0.0465	8.3500e-003	0.0549	0.0133	7.6800e-003	0.0210		161.6930	161.6930	1.2300e-003		161.7190
Worker	0.1106	0.1331	1.5506	3.9400e-003	0.3206	2.3700e-003	0.3230	0.0850	2.1900e-003	0.0872		307.0203	307.0203	0.0143		307.3201
Total	**0.1750**	**0.6841**	**2.2330**	**5.6000e-003**	**0.3672**	**0.0107**	**0.3779**	**0.0983**	**9.8700e-003**	**0.1082**		**468.7133**	**468.7133**	**0.0155**		**469.0390**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9004	20.5600	15.6637	0.0249		0.8868	0.8868		0.8641	0.8641	0.0000	2,317.2089	2,317.2089	0.4980		2,327.6664
Total	**2.9004**	**20.5600**	**15.6637**	**0.0249**		**0.8868**	**0.8868**		**0.8641**	**0.8641**	**0.0000**	**2,317.2089**	**2,317.2089**	**0.4980**		**2,327.6664**

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0644	0.5510	0.6824	1.6600e-003	0.0465	8.3500e-003	0.0549	0.0133	7.6800e-003	0.0210		161.6930	161.6930	1.2300e-003		161.7190
Worker	0.1106	0.1331	1.5506	3.9400e-003	0.3206	2.3700e-003	0.3230	0.0850	2.1900e-003	0.0872		307.0203	307.0203	0.0143		307.3201
Total	**0.1750**	**0.6841**	**2.2330**	**5.6000e-003**	**0.3672**	**0.0107**	**0.3779**	**0.0983**	**9.8700e-003**	**0.1082**		**468.7133**	**468.7133**	**0.0155**		**469.0390**

3.5 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3885	14.0727	11.8278	0.0176		0.8417	0.8417		0.7755	0.7755		1,749.8334	1,749.8334	0.5343		1,761.0529
Paving	0.0288					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4173**	**14.0727**	**11.8278**	**0.0176**		**0.8417**	**0.8417**		**0.7755**	**0.7755**		**1,749.8334**	**1,749.8334**	**0.5343**		**1,761.0529**

3.5 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0488	0.0587	0.6841	1.7400e-003	0.1415	1.0500e-003	0.1425	0.0375	9.7000e-004	0.0385		135.4501	135.4501	6.3000e-003		135.5824
Total	**0.0488**	**0.0587**	**0.6841**	**1.7400e-003**	**0.1415**	**1.0500e-003**	**0.1425**	**0.0375**	**9.7000e-004**	**0.0385**		**135.4501**	**135.4501**	**6.3000e-003**		**135.5824**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3885	14.0727	11.8278	0.0176		0.4303	0.4303		0.3970	0.3970	0.0000	1,749.8334	1,749.8334	0.5343		1,761.0529
Paving	0.0288					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4173**	**14.0727**	**11.8278**	**0.0176**		**0.4303**	**0.4303**		**0.3970**	**0.3970**	**0.0000**	**1,749.8334**	**1,749.8334**	**0.5343**		**1,761.0529**

3.5 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0488	0.0587	0.6841	1.7400e-003	0.1415	1.0500e-003	0.1425	0.0375	9.7000e-004	0.0385		135.4501	135.4501	6.3000e-003		135.5824
Total	**0.0488**	**0.0587**	**0.6841**	**1.7400e-003**	**0.1415**	**1.0500e-003**	**0.1425**	**0.0375**	**9.7000e-004**	**0.0385**		**135.4501**	**135.4501**	**6.3000e-003**		**135.5824**

3.6 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	45.2545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.0102
Total	**45.5531**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.6 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0228	0.0274	0.3192	8.1000e-004	0.0660	4.9000e-004	0.0665	0.0175	4.5000e-004	0.0180		63.2101	63.2101	2.9400e-003		63.2718
Total	**0.0228**	**0.0274**	**0.3192**	**8.1000e-004**	**0.0660**	**4.9000e-004**	**0.0665**	**0.0175**	**4.5000e-004**	**0.0180**		**63.2101**	**63.2101**	**2.9400e-003**		**63.2718**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	45.2545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.0102
Total	**45.5531**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.0102**

3.6 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0228	0.0274	0.3192	8.1000e-004	0.0660	4.9000e-004	0.0665	0.0175	4.5000e-004	0.0180		63.2101	63.2101	2.9400e-003		63.2718
Total	**0.0228**	**0.0274**	**0.3192**	**8.1000e-004**	**0.0660**	**4.9000e-004**	**0.0665**	**0.0175**	**4.5000e-004**	**0.0180**		**63.2101**	**63.2101**	**2.9400e-003**		**63.2718**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8964	1.8754	8.4289	0.0184	1.2560	0.0257	1.2817	0.3360	0.0236	0.3596		1,557.4886	1,557.4886	0.0616		1,558.7820
Unmitigated	0.8964	1.8754	8.4289	0.0184	1.2560	0.0257	1.2817	0.3360	0.0236	0.3596		1,557.4886	1,557.4886	0.0616		1,558.7820

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	243.83	264.92	224.59	544,908	544,908
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	243.83	264.92	224.59	544,908	544,908

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546114	0.062902	0.174648	0.122995	0.034055	0.004856	0.015640	0.024397	0.002087	0.003279	0.006673	0.000688	0.001667

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0213	0.1819	0.0774	1.1600e-003		0.0147	0.0147		0.0147	0.0147		232.2516	232.2516	4.4500e-003	4.2600e-003	233.6650
NaturalGas Unmitigated	0.0213	0.1819	0.0774	1.1600e-003		0.0147	0.0147		0.0147	0.0147		232.2516	232.2516	4.4500e-003	4.2600e-003	233.6650

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	1974.14	0.0213	0.1819	0.0774	1.1600e-003		0.0147	0.0147		0.0147	0.0147		232.2516	232.2516	4.4500e-003	4.2600e-003	233.6650
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0213**	**0.1819**	**0.0774**	**1.1600e-003**		**0.0147**	**0.0147**		**0.0147**	**0.0147**		**232.2516**	**232.2516**	**4.4500e-003**	**4.2600e-003**	**233.6650**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	1.97414	0.0213	0.1819	0.0774	1.1600e-003		0.0147	0.0147		0.0147	0.0147		232.2516	232.2516	4.4500e-003	4.2600e-003	233.6650
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0213**	**0.1819**	**0.0774**	**1.1600e-003**		**0.0147**	**0.0147**		**0.0147**	**0.0147**		**232.2516**	**232.2516**	**4.4500e-003**	**4.2600e-003**	**233.6650**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	18.2192	0.7266	50.6242	0.1093		7.4347	7.4347		7.4344	7.4344	994.9733	508.2652	1,503.2385	3.7798	0.0260	1,590.6597
Unmitigated	18.2192	0.7266	50.6242	0.1093		7.4347	7.4347		7.4344	7.4344	994.9733	508.2652	1,503.2385	3.7798	0.0260	1,590.6597

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4340					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1855					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	16.5036	0.6906	47.5390	0.1091		7.4180	7.4180		7.4177	7.4177	994.9733	502.7647	1,497.7380	3.7743	0.0260	1,585.0432
Landscaping	0.0962	0.0360	3.0852	1.6000e-004		0.0168	0.0168		0.0168	0.0168		5.5005	5.5005	5.5300e-003		5.6166
Total	**18.2192**	**0.7266**	**50.6242**	**0.1093**		**7.4347**	**7.4347**		**7.4344**	**7.4344**	**994.9733**	**508.2652**	**1,503.2385**	**3.7798**	**0.0260**	**1,590.6597**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4340					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1855					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	16.5036	0.6906	47.5390	0.1091		7.4180	7.4180		7.4177	7.4177	994.9733	502.7647	1,497.7380	3.7743	0.0260	1,585.0432
Landscaping	0.0962	0.0360	3.0852	1.6000e-004		0.0168	0.0168		0.0168	0.0168		5.5005	5.5005	5.5300e-003		5.6166
Total	**18.2192**	**0.7266**	**50.6242**	**0.1093**		**7.4347**	**7.4347**		**7.4344**	**7.4344**	**994.9733**	**508.2652**	**1,503.2385**	**3.7798**	**0.0260**	**1,590.6597**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Young Project

San Francisco Bay Area Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	37.00	Dwelling Unit	2.31	37,000.00	106
Other Asphalt Surfaces	14.30	1000sqft	0.33	14,295.00	0
Other Non-Asphalt Surfaces	4.10	1000sqft	0.09	4,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Demo: 20 days, Grading: 30 days, Construction: 220 days, Paving: 30 days

Off-road Equipment - Demo: 1 concrete saw, 1`dozer, 3 loader/backhoes

Off-road Equipment - Grading: 1 grader, 1 dozer, 2 loader/backhoes

Off-road Equipment - Construction: 1 crane, 2 forklifts, 1 gen set, 1 loader/backhoe, 3 welders

Off-road Equipment - Paving: 1 cement mixer, 1 paver, 1 paving equipment, 2 rollers, 1 loader/backhoe

Grading - 19800 CY Earthworks

Demolition -

Construction Off-road Equipment Mitigation - DPF level 3

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstructionPhase	NumDays	10.00	35.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	PhaseEndDate	4/18/2018	3/7/2018
tblConstructionPhase	PhaseEndDate	3/10/2017	3/15/2017
tblConstructionPhase	PhaseStartDate	3/1/2018	1/18/2018
tblConstructionPhase	PhaseStartDate	1/28/2017	2/2/2017
tblGrading	AcresOfGrading	15.00	3.00
tblGrading	MaterialImported	0.00	19,800.00
tblProjectCharacteristics	OperationalYear	2014	2017

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.4604	3.4714	2.7607	4.6400e-003	0.1542	0.1962	0.3504	0.0664	0.1864	0.2528	0.0000	399.4330	399.4330	0.0655	0.0000	400.8076
2018	0.8395	0.3861	0.3416	5.5000e-004	5.4500e-003	0.0235	0.0289	1.4600e-003	0.0222	0.0236	0.0000	47.2284	47.2284	0.0109	0.0000	47.4564
Total	**1.2998**	**3.8575**	**3.1024**	**5.1900e-003**	**0.1596**	**0.2197**	**0.3793**	**0.0679**	**0.2086**	**0.2764**	**0.0000**	**446.6614**	**446.6614**	**0.0763**	**0.0000**	**448.2640**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.4604	3.4714	2.7607	4.6400e-003	0.0968	0.1200	0.2168	0.0358	0.1163	0.1522	0.0000	399.4327	399.4327	0.0655	0.0000	400.8073
2018	0.8395	0.3861	0.3416	5.5000e-004	5.4500e-003	0.0150	0.0204	1.4600e-003	0.0143	0.0158	0.0000	47.2284	47.2284	0.0109	0.0000	47.4564
Total	**1.2998**	**3.8575**	**3.1024**	**5.1900e-003**	**0.1022**	**0.1350**	**0.2372**	**0.0373**	**0.1306**	**0.1679**	**0.0000**	**446.6610**	**446.6610**	**0.0763**	**0.0000**	**448.2636**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**35.97**	**38.55**	**37.46**	**45.07**	**37.36**	**39.25**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3365	4.2500e-003	0.3512	1.6000e-004		0.0128	0.0128		0.0128	0.0128	1.3152	1.4274	2.7426	4.8900e-003	5.0000e-005	2.8610
Energy	3.8900e-003	0.0332	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	84.8564	84.8564	2.8400e-003	1.1400e-003	85.2691
Mobile	0.1467	0.3352	1.4717	2.9100e-003	0.2027	4.3100e-003	0.2070	0.0544	3.9700e-003	0.0584	0.0000	224.1995	224.1995	9.3600e-003	0.0000	224.3961
Waste						0.0000	0.0000		0.0000	0.0000	3.4549	0.0000	3.4549	0.2042	0.0000	7.7427
Water						0.0000	0.0000		0.0000	0.0000	0.7648	5.3422	6.1070	0.0788	1.9000e-003	8.3521
Total	**0.4871**	**0.3726**	**1.8370**	**3.2800e-003**	**0.2027**	**0.0198**	**0.2225**	**0.0544**	**0.0194**	**0.0738**	**5.5349**	**315.8255**	**321.3604**	**0.3001**	**3.0900e-003**	**328.6210**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3365	4.2500e-003	0.3512	1.6000e-004		0.0128	0.0128		0.0128	0.0128	1.3152	1.4274	2.7426	4.8900e-003	5.0000e-005	2.8610
Energy	3.8900e-003	0.0332	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	84.8564	84.8564	2.8400e-003	1.1400e-003	85.2691
Mobile	0.1467	0.3352	1.4717	2.9100e-003	0.2027	4.3100e-003	0.2070	0.0544	3.9700e-003	0.0584	0.0000	224.1995	224.1995	9.3600e-003	0.0000	224.3961
Waste						0.0000	0.0000		0.0000	0.0000	3.4549	0.0000	3.4549	0.2042	0.0000	7.7427
Water						0.0000	0.0000		0.0000	0.0000	0.7648	5.3422	6.1070	0.0788	1.9000e-003	8.3509
Total	**0.4871**	**0.3726**	**1.8370**	**3.2800e-003**	**0.2027**	**0.0198**	**0.2225**	**0.0544**	**0.0194**	**0.0738**	**5.5349**	**315.8255**	**321.3604**	**0.3001**	**3.0900e-003**	**328.6198**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	1/27/2017	5	20	
2	Grading	Grading	2/2/2017	3/15/2017	5	30	
3	Building Construction	Building Construction	3/16/2017	1/17/2018	5	220	
4	Paving	Paving	1/18/2018	2/28/2018	5	30	
5	Architectural Coating	Architectural Coating	1/18/2018	3/7/2018	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 74,925; Residential Outdoor: 24,975; Non-Residential Indoor: 27,593; Non-Residential Outdoor: 9,198 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Paving	Pavers	1	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Paving	Paving Equipment	1	8.00	130	0.36
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	10.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	2,475.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	34.00	7.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0700e-003	0.0000	1.0700e-003	1.6000e-004	0.0000	1.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0272	0.2659	0.2087	2.4000e-004		0.0161	0.0161		0.0150	0.0150	0.0000	22.2938	22.2938	5.6600e-003	0.0000	22.4126
Total	**0.0272**	**0.2659**	**0.2087**	**2.4000e-004**	**1.0700e-003**	**0.0161**	**0.0171**	**1.6000e-004**	**0.0150**	**0.0152**	**0.0000**	**22.2938**	**22.2938**	**5.6600e-003**	**0.0000**	**22.4126**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1000e-004	1.3400e-003	1.2300e-003	0.0000	8.0000e-005	2.0000e-005	1.0000e-004	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.3372	0.3372	0.0000	0.0000	0.3372
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	6.4000e-004	6.1500e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0294	1.0294	5.0000e-005	0.0000	1.0305
Total	**5.5000e-004**	**1.9800e-003**	**7.3800e-003**	**1.0000e-005**	**1.2600e-003**	**3.0000e-005**	**1.2900e-003**	**3.3000e-004**	**3.0000e-005**	**3.6000e-004**	**0.0000**	**1.3666**	**1.3666**	**5.0000e-005**	**0.0000**	**1.3678**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.2000e-004	0.0000	4.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0272	0.2659	0.2087	2.4000e-004		5.0200e-003	5.0200e-003		4.8600e-003	4.8600e-003	0.0000	22.2938	22.2938	5.6600e-003	0.0000	22.4125
Total	**0.0272**	**0.2659**	**0.2087**	**2.4000e-004**	**4.2000e-004**	**5.0200e-003**	**5.4400e-003**	**6.0000e-005**	**4.8600e-003**	**4.9200e-003**	**0.0000**	**22.2938**	**22.2938**	**5.6600e-003**	**0.0000**	**22.4125**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1000e-004	1.3400e-003	1.2300e-003	0.0000	8.0000e-005	2.0000e-005	1.0000e-004	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.3372	0.3372	0.0000	0.0000	0.3372
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	6.4000e-004	6.1500e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0294	1.0294	5.0000e-005	0.0000	1.0305
Total	**5.5000e-004**	**1.9800e-003**	**7.3800e-003**	**1.0000e-005**	**1.2600e-003**	**3.0000e-005**	**1.2900e-003**	**3.3000e-004**	**3.0000e-005**	**3.6000e-004**	**0.0000**	**1.3666**	**1.3666**	**5.0000e-005**	**0.0000**	**1.3678**

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0930	0.0000	0.0930	0.0500	0.0000	0.0500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0405	0.4224	0.2845	3.1000e-004		0.0233	0.0233		0.0215	0.0215	0.0000	28.6386	28.6386	8.7700e-003	0.0000	28.8228
Total	**0.0405**	**0.4224**	**0.2845**	**3.1000e-004**	**0.0930**	**0.0233**	**0.1164**	**0.0500**	**0.0215**	**0.0715**	**0.0000**	**28.6386**	**28.6386**	**8.7700e-003**	**0.0000**	**28.8228**

3.3 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0270	0.3322	0.3039	9.3000e-004	0.0209	4.2500e-003	0.0251	5.7300e-003	3.9100e-003	9.6400e-003	0.0000	83.4502	83.4502	6.1000e-004	0.0000	83.4629
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	7.4000e-004	7.1000e-003	2.0000e-005	1.3600e-003	1.0000e-005	1.3700e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1878	1.1878	6.0000e-005	0.0000	1.1891
Total	**0.0275**	**0.3329**	**0.3110**	**9.5000e-004**	**0.0222**	**4.2600e-003**	**0.0265**	**6.0900e-003**	**3.9200e-003**	**0.0100**	**0.0000**	**84.6380**	**84.6380**	**6.7000e-004**	**0.0000**	**84.6520**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0363	0.0000	0.0363	0.0195	0.0000	0.0195	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0405	0.4224	0.2845	3.1000e-004		3.5000e-003	3.5000e-003		3.2200e-003	3.2200e-003	0.0000	28.6385	28.6385	8.7700e-003	0.0000	28.8228
Total	**0.0405**	**0.4224**	**0.2845**	**3.1000e-004**	**0.0363**	**3.5000e-003**	**0.0398**	**0.0195**	**3.2200e-003**	**0.0227**	**0.0000**	**28.6385**	**28.6385**	**8.7700e-003**	**0.0000**	**28.8228**

3.3 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0270	0.3322	0.3039	9.3000e-004	0.0209	4.2500e-003	0.0251	5.7300e-003	3.9100e-003	9.6400e-003	0.0000	83.4502	83.4502	6.1000e-004	0.0000	83.4629
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	7.4000e-004	7.1000e-003	2.0000e-005	1.3600e-003	1.0000e-005	1.3700e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1878	1.1878	6.0000e-005	0.0000	1.1891
Total	**0.0275**	**0.3329**	**0.3110**	**9.5000e-004**	**0.0222**	**4.2600e-003**	**0.0265**	**6.0900e-003**	**3.9200e-003**	**0.0100**	**0.0000**	**84.6380**	**84.6380**	**6.7000e-004**	**0.0000**	**84.6520**

3.4 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3444	2.3659	1.6818	2.5800e-003		0.1513	0.1513		0.1449	0.1449	0.0000	219.2276	219.2276	0.0487	0.0000	220.2508
Total	**0.3444**	**2.3659**	**1.6818**	**2.5800e-003**		**0.1513**	**0.1513**		**0.1449**	**0.1449**	**0.0000**	**219.2276**	**219.2276**	**0.0487**	**0.0000**	**220.2508**

3.4 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.3600e-003	0.0651	0.1007	1.7000e-004	4.6600e-003	9.4000e-004	5.6000e-003	1.3400e-003	8.6000e-004	2.2000e-003	0.0000	15.4036	15.4036	1.2000e-004	0.0000	15.4061
Worker	0.0118	0.0173	0.1666	3.8000e-004	0.0319	2.5000e-004	0.0322	8.4900e-003	2.3000e-004	8.7300e-003	0.0000	27.8650	27.8650	1.4600e-003	0.0000	27.8956
Total	**0.0202**	**0.0824**	**0.2673**	**5.5000e-004**	**0.0366**	**1.1900e-003**	**0.0378**	**9.8300e-003**	**1.0900e-003**	**0.0109**	**0.0000**	**43.2686**	**43.2686**	**1.5800e-003**	**0.0000**	**43.3017**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3444	2.3659	1.6818	2.5800e-003		0.1061	0.1061		0.1032	0.1032	0.0000	219.2273	219.2273	0.0487	0.0000	220.2505
Total	**0.3444**	**2.3659**	**1.6818**	**2.5800e-003**		**0.1061**	**0.1061**		**0.1032**	**0.1032**	**0.0000**	**219.2273**	**219.2273**	**0.0487**	**0.0000**	**220.2505**

3.4 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.3600e-003	0.0651	0.1007	1.7000e-004	4.6600e-003	9.4000e-004	5.6000e-003	1.3400e-003	8.6000e-004	2.2000e-003	0.0000	15.4036	15.4036	1.2000e-004	0.0000	15.4061
Worker	0.0118	0.0173	0.1666	3.8000e-004	0.0319	2.5000e-004	0.0322	8.4900e-003	2.3000e-004	8.7300e-003	0.0000	27.8650	27.8650	1.4600e-003	0.0000	27.8956
Total	**0.0202**	**0.0824**	**0.2673**	**5.5000e-004**	**0.0366**	**1.1900e-003**	**0.0378**	**9.8300e-003**	**1.0900e-003**	**0.0109**	**0.0000**	**43.2686**	**43.2686**	**1.5800e-003**	**0.0000**	**43.3017**

3.4 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0189	0.1336	0.1018	1.6000e-004		8.1300e-003	8.1300e-003		7.7900e-003	7.7900e-003	0.0000	13.6639	13.6639	2.9400e-003	0.0000	13.7256
Total	**0.0189**	**0.1336**	**0.1018**	**1.6000e-004**		**8.1300e-003**	**8.1300e-003**		**7.7900e-003**	**7.7900e-003**	**0.0000**	**13.6639**	**13.6639**	**2.9400e-003**	**0.0000**	**13.7256**

3.4 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7000e-004	3.7000e-003	5.8900e-003	1.0000e-005	2.9000e-004	5.0000e-005	3.5000e-004	8.0000e-005	5.0000e-005	1.3000e-004	0.0000	0.9504	0.9504	1.0000e-005	0.0000	0.9505
Worker	6.6000e-004	9.8000e-004	9.3600e-003	2.0000e-005	2.0000e-003	2.0000e-005	2.0200e-003	5.3000e-004	1.0000e-005	5.5000e-004	0.0000	1.6851	1.6851	8.0000e-005	0.0000	1.6868
Total	**1.1300e-003**	**4.6800e-003**	**0.0153**	**3.0000e-005**	**2.2900e-003**	**7.0000e-005**	**2.3700e-003**	**6.1000e-004**	**6.0000e-005**	**6.8000e-004**	**0.0000**	**2.6354**	**2.6354**	**9.0000e-005**	**0.0000**	**2.6374**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0189	0.1336	0.1018	1.6000e-004		5.7600e-003	5.7600e-003		5.6200e-003	5.6200e-003	0.0000	13.6639	13.6639	2.9400e-003	0.0000	13.7255
Total	**0.0189**	**0.1336**	**0.1018**	**1.6000e-004**		**5.7600e-003**	**5.7600e-003**		**5.6200e-003**	**5.6200e-003**	**0.0000**	**13.6639**	**13.6639**	**2.9400e-003**	**0.0000**	**13.7255**

3.4 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7000e-004	3.7000e-003	5.8900e-003	1.0000e-005	2.9000e-004	5.0000e-005	3.5000e-004	8.0000e-005	5.0000e-005	1.3000e-004	0.0000	0.9504	0.9504	1.0000e-005	0.0000	0.9505
Worker	6.6000e-004	9.8000e-004	9.3600e-003	2.0000e-005	2.0000e-003	2.0000e-005	2.0200e-003	5.3000e-004	1.0000e-005	5.5000e-004	0.0000	1.6851	1.6851	8.0000e-005	0.0000	1.6868
Total	**1.1300e-003**	**4.6800e-003**	**0.0153**	**3.0000e-005**	**2.2900e-003**	**7.0000e-005**	**2.3700e-003**	**6.1000e-004**	**6.0000e-005**	**6.8000e-004**	**0.0000**	**2.6354**	**2.6354**	**9.0000e-005**	**0.0000**	**2.6374**

3.5 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0208	0.2111	0.1774	2.6000e-004		0.0126	0.0126		0.0116	0.0116	0.0000	23.8113	23.8113	7.2700e-003	0.0000	23.9640
Paving	4.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0213**	**0.2111**	**0.1774**	**2.6000e-004**		**0.0126**	**0.0126**		**0.0116**	**0.0116**	**0.0000**	**23.8113**	**23.8113**	**7.2700e-003**	**0.0000**	**23.9640**

3.5 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	1.0000e-003	9.5300e-003	2.0000e-005	2.0400e-003	2.0000e-005	2.0600e-003	5.4000e-004	1.0000e-005	5.6000e-004	0.0000	1.7156	1.7156	9.0000e-005	0.0000	1.7174
Total	**6.8000e-004**	**1.0000e-003**	**9.5300e-003**	**2.0000e-005**	**2.0400e-003**	**2.0000e-005**	**2.0600e-003**	**5.4000e-004**	**1.0000e-005**	**5.6000e-004**	**0.0000**	**1.7156**	**1.7156**	**9.0000e-005**	**0.0000**	**1.7174**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0208	0.2111	0.1774	2.6000e-004		6.4500e-003	6.4500e-003		5.9600e-003	5.9600e-003	0.0000	23.8113	23.8113	7.2700e-003	0.0000	23.9640
Paving	4.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0213**	**0.2111**	**0.1774**	**2.6000e-004**		**6.4500e-003**	**6.4500e-003**		**5.9600e-003**	**5.9600e-003**	**0.0000**	**23.8113**	**23.8113**	**7.2700e-003**	**0.0000**	**23.9640**

3.5 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	1.0000e-003	9.5300e-003	2.0000e-005	2.0400e-003	2.0000e-005	2.0600e-003	5.4000e-004	1.0000e-005	5.6000e-004	0.0000	1.7156	1.7156	9.0000e-005	0.0000	1.7174
Total	**6.8000e-004**	**1.0000e-003**	**9.5300e-003**	**2.0000e-005**	**2.0400e-003**	**2.0000e-005**	**2.0600e-003**	**5.4000e-004**	**1.0000e-005**	**5.6000e-004**	**0.0000**	**1.7156**	**1.7156**	**9.0000e-005**	**0.0000**	**1.7174**

3.6 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7920					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2300e-003	0.0351	0.0325	5.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	4.4682	4.4682	4.2000e-004	0.0000	4.4771
Total	**0.7972**	**0.0351**	**0.0325**	**5.0000e-005**		**2.6300e-003**	**2.6300e-003**		**2.6300e-003**	**2.6300e-003**	**0.0000**	**4.4682**	**4.4682**	**4.2000e-004**	**0.0000**	**4.4771**

3.6 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	5.4000e-004	5.1900e-003	1.0000e-005	1.1100e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.9340	0.9340	5.0000e-005	0.0000	0.9350
Total	**3.7000e-004**	**5.4000e-004**	**5.1900e-003**	**1.0000e-005**	**1.1100e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9340**	**0.9340**	**5.0000e-005**	**0.0000**	**0.9350**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7920					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2300e-003	0.0351	0.0325	5.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	4.4682	4.4682	4.2000e-004	0.0000	4.4771
Total	**0.7972**	**0.0351**	**0.0325**	**5.0000e-005**		**2.6300e-003**	**2.6300e-003**		**2.6300e-003**	**2.6300e-003**	**0.0000**	**4.4682**	**4.4682**	**4.2000e-004**	**0.0000**	**4.4771**

3.6 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	5.4000e-004	5.1900e-003	1.0000e-005	1.1100e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.9340	0.9340	5.0000e-005	0.0000	0.9350
Total	**3.7000e-004**	**5.4000e-004**	**5.1900e-003**	**1.0000e-005**	**1.1100e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9340**	**0.9340**	**5.0000e-005**	**0.0000**	**0.9350**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1467	0.3352	1.4717	2.9100e-003	0.2027	4.3100e-003	0.2070	0.0544	3.9700e-003	0.0584	0.0000	224.1995	224.1995	9.3600e-003	0.0000	224.3961
Unmitigated	0.1467	0.3352	1.4717	2.9100e-003	0.2027	4.3100e-003	0.2070	0.0544	3.9700e-003	0.0584	0.0000	224.1995	224.1995	9.3600e-003	0.0000	224.3961

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	243.83	264.92	224.59	544,908	544,908
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	243.83	264.92	224.59	544,908	544,908

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546114	0.062902	0.174648	0.122995	0.034055	0.004856	0.015640	0.024397	0.002087	0.003279	0.006673	0.000688	0.001667

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	46.4046	46.4046	2.1000e-003	4.3000e-004	46.5832
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	46.4046	46.4046	2.1000e-003	4.3000e-004	46.5832
NaturalGas Mitigated	3.8900e-003	0.0332	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.4519	38.4519	7.4000e-004	7.0000e-004	38.6859
NaturalGas Unmitigated	3.8900e-003	0.0332	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.4519	38.4519	7.4000e-004	7.0000e-004	38.6859

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	720561	3.8900e-003	0.0332	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.4519	38.4519	7.4000e-004	7.0000e-004	38.6859
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.8900e-003**	**0.0332**	**0.0141**	**2.1000e-004**		**2.6800e-003**	**2.6800e-003**		**2.6800e-003**	**2.6800e-003**	**0.0000**	**38.4519**	**38.4519**	**7.4000e-004**	**7.0000e-004**	**38.6859**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	720561	3.8900e-003	0.0332	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.4519	38.4519	7.4000e-004	7.0000e-004	38.6859
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.8900e-003**	**0.0332**	**0.0141**	**2.1000e-004**		**2.6800e-003**	**2.6800e-003**		**2.6800e-003**	**2.6800e-003**	**0.0000**	**38.4519**	**38.4519**	**7.4000e-004**	**7.0000e-004**	**38.6859**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	159514	46.4046	2.1000e-003	4.3000e-004	46.5832
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**46.4046**	**2.1000e-003**	**4.3000e-004**	**46.5832**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	159514	46.4046	2.1000e-003	4.3000e-004	46.5832
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**46.4046**	**2.1000e-003**	**4.3000e-004**	**46.5832**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3365	4.2500e-003	0.3512	1.6000e-004		0.0128	0.0128		0.0128	0.0128	1.3152	1.4274	2.7426	4.8900e-003	5.0000e-005	2.8610
Unmitigated	0.3365	4.2500e-003	0.3512	1.6000e-004		0.0128	0.0128		0.0128	0.0128	1.3152	1.4274	2.7426	4.8900e-003	5.0000e-005	2.8610

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0792					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2164					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0323	1.0200e-003	0.0735	1.4000e-004		0.0113	0.0113		0.0113	0.0113	1.3152	0.9783	2.2935	4.4400e-003	5.0000e-005	2.4024
Landscaping	8.6600e-003	3.2400e-003	0.2777	1.0000e-005		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	0.4491	0.4491	4.5000e-004	0.0000	0.4586
Total	**0.3365**	**4.2600e-003**	**0.3512**	**1.5000e-004**		**0.0128**	**0.0128**		**0.0128**	**0.0128**	**1.3152**	**1.4274**	**2.7426**	**4.8900e-003**	**5.0000e-005**	**2.8610**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0792					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2164					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0323	1.0200e-003	0.0735	1.4000e-004		0.0113	0.0113		0.0113	0.0113	1.3152	0.9783	2.2935	4.4400e-003	5.0000e-005	2.4024
Landscaping	8.6600e-003	3.2400e-003	0.2777	1.0000e-005		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	0.4491	0.4491	4.5000e-004	0.0000	0.4586
Total	**0.3365**	**4.2600e-003**	**0.3512**	**1.5000e-004**		**0.0128**	**0.0128**		**0.0128**	**0.0128**	**1.3152**	**1.4274**	**2.7426**	**4.8900e-003**	**5.0000e-005**	**2.8610**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.1070	0.0788	1.9000e-003	8.3509
Unmitigated	6.1070	0.0788	1.9000e-003	8.3521

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	2.4107 / 1.51979	6.1070	0.0788	1.9000e-003	8.3521
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**6.1070**	**0.0788**	**1.9000e-003**	**8.3521**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	2.4107 / 1.51979	6.1070	0.0788	1.9000e-003	8.3509
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**6.1070**	**0.0788**	**1.9000e-003**	**8.3509**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.4549	0.2042	0.0000	7.7427
Unmitigated	3.4549	0.2042	0.0000	7.7427

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	17.02	3.4549	0.2042	0.0000	7.7427
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**3.4549**	**0.2042**	**0.0000**	**7.7427**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	17.02	3.4549	0.2042	0.0000	7.7427
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**3.4549**	**0.2042**	**0.0000**	**7.7427**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

ATTACHMENT 2

HEALTH RISK ANALYSIS
SCREEN3 MODEL OUTPUT

YOUNG HRA

Risks and Hazards Construction-Related Significance Thresholds

Pollutant	Construction-Related Thresholds
Risks and Hazards – TACs & $PM_{2.5}$ (Individual Project)	Increased cancer risk of >10.0 in a million Increased non-cancer risk of >1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase: >0.3 µg/m^3 annual average
Risks and Hazards – TACs & $PM_{2.5}$ (Cumulative – Source or Receptor)	Increased cancer risk of >100 in a million (from all local sources) Increased non-cancer risk of >10.0 Hazard Index (from all local sources) (Chronic) Ambient $PM_{2.5}$ increase: >0.8 µg/m^3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from property line of source or receptor

Annual emissions are derived from CalEEMod Annual output files. CaleeMod annual concentrations were used in the AERSCREEN model to calculate the maximum one-hour and annual concentrations with an hourly to annual scaling factor of 0.1. The predicted maximum DPM concentrations are as follows.

Total Construction DPM Emissions	Model Output Maximum One-Hour Concentration	Annual Concentration
0.2015 Tons	2.224 µg/m^3	0.2224 µg/m^3

The excess individual cancer risk factor for DPM exposure is approximately 300 in a million per 1 µg/m^3 of lifetime exposure. More recent research has determined that young children are substantially more sensitive to DPM exposure risk. If exposure occurs in the first several years of life, an age sensitivity factor (ASF) of 10 should be applied. For toddlers though mid-teens, the ASF is 3. The DPM exposure risk from construction exhaust thus depends upon the age of the receptor population as follows:

Individual Project Construction Emissions

Age Group	Excess Cancer Risk (in a million)
Infants	9.531
Children	2.859
Adults	0.953
Threshold	10
Exceeds Threshold?	No

*DPM (µg/m^3) * ASF * 300 x 10^{-6} 70 years

Chronic Hazard = 0.043
Acute = 0.250

The proposed project would locate new construction within 1,000 feet of several permitted stationary sources. Based on the BAAQMD's database for existing permitted sources, the following screening-level estimates from existing permitted sources within 1,000 feet of the project site were compiled:

Risks and Hazards for Maximally Exposed Receptor from Existing Permitted Stationary Sources

Site #	Facility Name	Street Address	City	Distance	Excess Cancer Risk in a Million	Chronic Hazard Index	Acute Hazard Index	PM2.5 ($\mu g/m^3$)*
7309	Creekside Plaza Cleaners	16145B Monterey Road	Morgan Hill	500 ft	7.49	0.020	0.00	0.00
5149	F&F Steel&Stairway	1775 Monterey Rd	San Jose	850 ft	0.76	0.002	0.00	0.00
Total– Stationary Sources					**8.25**	**0.022**	**0.00**	**0.00**

The district has also developed screening tables for roadways within 1,000 feet of a project based on annual average daily traffic (ADT). Only roadways with more than an ADT of 10,000 are to be included in any evaluation. ADTs on roadways near the project site were provided in Google Earth.

No freeways are within 1,000 feet of the proposed construction area. However, there is one roadway with an ADT exceeding 10,000 per day within 1,000 feet as follows:

Direction	Roadway	Distance*	ADT	Risk (x 10^{-6})**	PM-2.5 Concentration $\mu g/m^3$
N-S	Monterey Rd	840 feet	21,723	0.83	0.017

*distance to MEI on Calle Sueno
**Interpolated for site-specific distances and ADTs

The following chart summarizes the different cumulative area contributors (stationary source and project construction):

Type	Risk (x 10^{-6})	PM-2.5 Concentration $\mu g/m^3$	Chronic Hazard	Acute* Hazard
Stationary Source	8.25	-	0.022	0.00
Roadways	0.83	0.017	-	-
Individual Project (worst-case)	9.53	0.222	.044	0.259
Max Cumulative	18.61	0.239	0.066	0.259
Threshold	100	0.8	1	1

*based upon the ratio of speciated organic gases to DPM in diesel exhaust relative to peak 1-hour concentrations

All combined cumulative impacts (stationary source and construction activities) will be below adopted thresholds of significance. No upgraded impact analysis or mitigation measures are required based upon the results of the conservative (over-predictive) screening analysis.

ATTACHMENT 3

TREE REPORT FOR

MONTEREY ROAD X WATSONVILLE ROAD, MORGAN HILL

APN # 767-23-030

YOUNG SITE PLANNING

BY

MORGAN HILL TREE SERVICE

SEPTEMBER 25, 2013

Moki Smith

Morgan Hill Tree Service

9440 Trailblazer Way
Gilroy, CA 95020
408-722-8942 / 408-848-9946
arborist@garlic.com
License #678321 ~ Insured PL/PD ~ Workers Compensation

Scott Murray
Intero Real Estate
175 East Main Ave
Morgan Hill, CA 95037
408-406-6000 408-406-6000 408-516-9946
smurray@interorealestate.com

September 25, 2013

Property at: Monterey Rd X Watsonville Rd
Morgan Hill
APN # 767-23-030
Young Site Planning

As per your request we visited the property shown above in order to number, tag, identify, evaluate and make observations and recommendations regarding trees on the site.

All construction site preservation measures should be observed for optimum care and conservation of the trees located on site.

Trees on site map which are not referenced within this report are not protected species or they are situated along the creek. These Willows are native, however, they are not protected within the City of Morgan Hill code.

Explanations are included for your reference.

Please feel free to request any additional information or clarification.

Respectfully submitted,
Moki Smith

Tag #

1. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Valley oak	*Quercus lobata*	38"	43'	52'	Fair

Observations:
This tree is inclined extensively to the West.
The canopy is off center with approximately 80% of the weight on the West side.
There is a large wound in the trunk on the South West side.
This tree should be preserved.
Recommendations:
Prune to lighten canopy on the West side
Spray large wounds with fungicide to reduce the possibility of decay causing infestation.

2. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Valley oak	*Quercus lobata*	55"	40'	61'	Poor

Observations:
This tree was not tagged due to bee hive present.
There is a large wound in the main stem from 12" above grade to the first main crotch on the South side that has resulted from a structural failure.
There is also a large wound in the upper canopy.
The tree is inclined severely to the North West.
Recommendations:
Remove for safety.

3. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Coast live oak	*Quercus agrifolia*	11"	13'	14'	Fair

Observations:
This tree is in fair condition.
This tree should be preserved.
Recommendations:
Implement all construction site safety measures.
Class II prune in order to remove large deadwood from 2" diameter and above.
Raise canopy to 15' from grade for clearance.
Excavate root collar to determine anchorage and root zone health.

4. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Coast live oak	*Quercus agrifolia*	22"	22'	20'	Fair

Observations:
This tree has a multi-leader main stem with 2 main uprights.
This tree is in fair condition.
This tree should be preserved.
Recommendations:
Implement all construction site safety measures.
Class II prune in order to remove large deadwood from 2" diameter and above.
Raise canopy to 15' from grade for clearance.
Excavate root collar to determine anchorage and root zone health.

5. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Coast live oak	*Quercus agrifolia*	44"	26'	36'	Fair

Observations:
This tree has a multi-leader main stem with 4 main uprights.
This tree is in fair condition.
This tree should be preserved.
Recommendations:
Implement all construction site safety measures.
Class II prune in order to remove large deadwood from 2" diameter and above.
Raise canopy to 15' from grade for clearance.
Excavate root collar to determine anchorage and root zone health.

6. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Coast live oak	*Quercus agrifolia*	32"	16'	24'	Fair

Observations:
This tree has a multi-leader main stem with 3 main uprights.
This tree is in fair condition.
This tree should be preserved.
Recommendations:
Implement all construction site safety measures.
Class II prune in order to remove large deadwood from 2" diameter and above.
Raise canopy to 15' from grade for clearance.
Excavate root collar to determine anchorage and root zone health.

7. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Coast live oak	*Quercus agrifolia*	6"	17'	9'	Fair

Observations:
This tree is in fair condition.
This tree should be preserved.
Recommendations:
Implement all construction site safety measures.
Class II prune in order to remove large deadwood from 2" diameter and above.
Raise canopy to 15' from grade for clearance.
Excavate root collar to determine anchorage and root zone health.

8. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Coast live oak	*Quercus agrifolia*	10"	21'	19'	Good

Observations:
This tree is in fair condition.
This tree should be preserved.
Recommendations:
Implement all construction site safety measures.
Class II prune in order to remove large deadwood from 2" diameter and above.
Raise canopy to 15' from grade for clearance.
Excavate root collar to determine anchorage and root zone health.

9. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Valley oak	*Quercus lobata*	20"	31'	34'	Good

Observations:
This tree is in fair condition.
This tree should be preserved.
Recommendations:
Implement all construction site safety measures.
Class II prune in order to remove large deadwood from 2" diameter and above.
Raise canopy to 15' from grade for clearance.
Excavate root collar to determine anchorage and root zone health.

10. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Valley oak	*Quercus lobata*	22"	36'	47'	Fair

Observations:
This tree is in fair condition.
This tree should be preserved.
Recommendations:
Implement all construction site safety measures.
Class II prune in order to remove large deadwood from 2" diameter and above.
Raise canopy to 15' from grade for clearance.
Excavate root collar to determine anchorage and root zone health.

11. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Valley oak	*Quercus lobata*	26"	36'	39'	Fair

Observations:
This tree is in fair condition.
This tree should be preserved.
Recommendations:
Implement all construction site safety measures.
Class II prune in order to remove large deadwood from 2" diameter and above.
Raise canopy to 15' from grade for clearance.
Excavate root collar to determine anchorage and root zone health.

12. Common Name	Species	*D.B.H.	Height	Canopy Spread	Condition
Valley oak	*Quercus lobata*	26"	20'	18'	Poor

Observations:
This tree is in poor condition.
There are signs of extensive main stem decay.
Recommendations:
Remove for safety.

Construction Site - Tree Preservation

• Locate structures, grade changes, etc. as far as feasible from the `dripline' area of the tree.

• Avoid root damage through grading, trenching, compaction, etc., at least within an area 1.5 times the `dripline' area of trees. Where root damage cannot be avoided, roots encountered (over 1" diameter) should be exposed approximately 12" beyond the area to be disturbed (towards tree stem), by hand excavation, or with specialized hydraulic or pneumatic
equipment, cut cleanly with hand pruners or power saw, and immediately back-filled with soil. Avoid tearing, or otherwise disturbing that portion of the root(s) to remain.

• Construct a temporary fence as far from the tree stem (trunk) as possible, completely surrounding the tree, and 6-8 feet in height. Post no parking or storage signs outside / on fencing. Do not attach posting to the mainstem of the tree.

• Do not allow vehicles, equipment, pedestrian traffic; building materials or debris storage; or disposal of toxic or other materials inside of the fenced off area.

• Avoid pruning immediately before, during, or immediately after construction impact. Perform only that pruning which is unavoidable due to conflicts with proposed development. Aesthetic pruning should not be performed for at least 1-2 years following completion of construction.

• Trees that will be impacted by construction may benefit from fertilization, ideally performed in the fall, and preferably prior to any construction activities, with not more than 6 lbs. of actual nitrogen per 1,000 square feet of accessible `drip line' area or beyond.

• Mulch `rooting' area with an acidic, organic compost or mulch.

• Arrange for periodic (Biannual/Quarterly) inspection of tree's condition, and treatment of damaging conditions (insects, diseases, nutrient deficiencies, etc.) as they occur, or as appropriate.

• Individual trees likely to suffer significant impacts may require specific, more extensive efforts and/or a more detailed specification than those contained within these general guidelines.

Some explanation:

Proper pruning is one of the most effective ways to reduce tree failures. A tree failure can be caused by a variety of factors. One of the most important is tree species. Trees such as eucalyptus or liquidambar are prone to branch failures. Flowering pears, maples and oaks are prone to limb failures or trunk failures where limbs or trunks meet in a "v" shape at the crotch. Eucalyptus, pines and oaks may fail at the root zone because of heavy canopies or decay of the root system caused by fungi.

For example, a flowering pear tree with multiple trunks that meet in the same area is very prone to trunk failure. A eucalyptus or liquidambar with long horizontal limbs and excessive end weight will likely shed branches during winter storms. Oak trees with root fungi and root loss may fall over during the rainy season.

Correctly pruning trees with these structural defects helps to prevent failures. Crown reduction also known as crown shaping and crown thinning are two types of pruning that help reduce failures. Crown reduction decreases the height or spread of a tree. Crown thinning consists of selective removal of branches to increase light penetration, air movement and reduce weight. Crown cleaning is the selective removal of dead, dying, weak or diseased branches. Weight reduction and weak or dead limb removal are the primary benefits from these methods of pruning for hazard reduction.

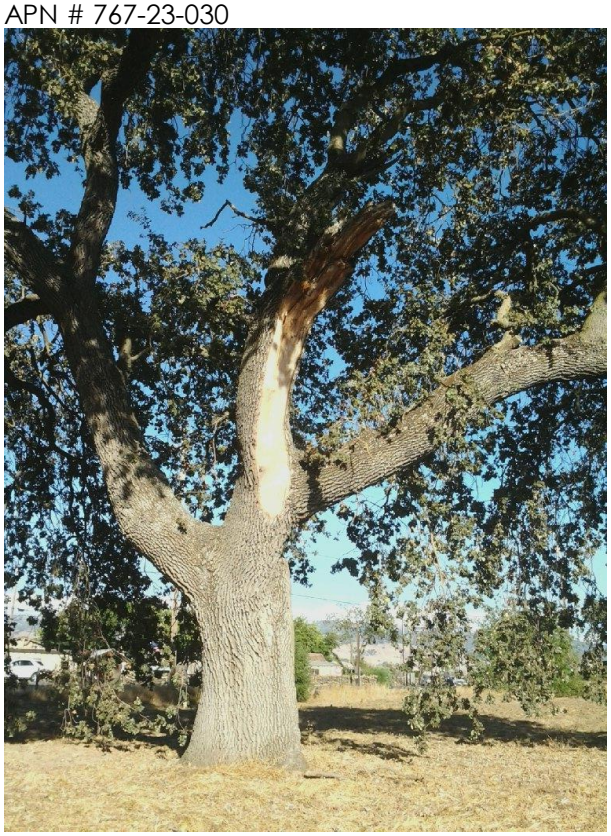
There are several improper "pruning" techniques that can actually increase the likelihood of tree failures. The most notorious practice is topping or heading trees. Topping trees causes several problems including rapid re-growth of limbs that are weakly attached and prone to failure; decay at the topping site that leads to future limb or trunk failures; and heavy canopies that may cause future failure of the entire tree.

Another type of improper pruning is known as "lion tailing". Lion tailing involves over thinning the interior of a tree and leaving all the weight at the ends of the limbs, leaving a tuft of foliage at the tip similar to the fur on a lion's tail. Placing all the growth and weight at the end of the limb is the opposite of proper weight reduction accomplished by crown shaping or thinning to lateral cuts. These interior branches also provide nutrients that help develop calliper and strength along the length of the branches. By properly pruning your trees you can reduce tree failures and promote better health and structure.


12
11
10
9
8
7
6
2
5
4
3
1
Via Naretto
Calle Sueno
Monterey Rd
Watsonville Rd
© 2013 Google
Google earth
1993
Imagery Date: 4/15/2013 37°06'26.54" N 121°38'13.57" W elev 320 ft eye alt 1171 ft


Tree #1


Tree #2



Tree #2

Tree #2

Tree #3 - 6


Tree #7 & 8


Tree #9 - 11

Tree #12

ATTACHMENT 4

PEER REVIEW OF BIOLOGICAL RESOURCES REPORT

MONTEREY-YOUNG PROJECT

MORGAN HILL, CA

BY

MOSAIC ASSOCIATES LLC

AUGUST 5, 2015

MOSAIC ASSOCIATES LLC
1690 San Pablo Avenue, Suite D. Pinole, CA 94564. 510.964.0394

August 5, 2015

Fritz Geier
Geier & Geier Consulting, Inc.
P.O. Box 5054
Berkeley, CA 94705

Re: Peer Review of Biological Resources Report, Monterey-Young Project, Morgan Hill, CA

Dear Fritz:
This letter reports on my peer review of the "Biological Constraints Letter for the Watsonville Road/Monterey Highway Property in the City of Morgan Hill" ("Biological Constraints Letter", Live Oak Associates, 9/6/2011). In addition to the peer review, this also reports on the tally of trees along Little Llagas Creek and the periphery of the property that were not reported in the Arborist's Report (Moki Smith, 9/25/2013).

Methods
Prior to my site visit on 8/4/2015, I reviewed the Biological Constraints Letter, Arborist Report, map of jurisdictional wetlands for the project site (Live Oak Associates, 10/26/2011 with jurisdictional determination by U.S. Army Corps of Engineers 1/19/2012), Existing Tree Trunk Locations (Ruggeri-Jensen-Azar, 10/10/2014), Conceptual Site Plan (Bassenian/Lagoni Architects, 6/30/2015), and Young Property Riparian Setback (Live Oak Associates, 10/28/2014). I also reviewed historic imagery of the property in Google Earth and the U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) to assess the presence of historic wetlands on the property.

During my reconnaissance-level site survey of the approximately 8.5 acre property on 8/4/2015, I surveyed the property by foot, noting existing conditions, vegetation and wildlife. I also tallied trees that were not described in the Arborist Report, as you requested. I recorded trees by species and location, but did not measure height, diameter or circumference at breast height (4.5 feet above ground surface), or assign "tree" or "indigenous tree" status per City of Morgan Hill Municipal Code.

Proposed Project
The project proposes the development of 37 residential units on approximately 5.6 acres east of Little Llagas Creek. Development would occur outside a 35-foot riparian setback from the creek. The portion of the property west of Little Llagas Creek would not be developed at this time.

Findings
In general, the Biological Constraints Letter accurately describes existing conditions on the project site, special-status plants and animals, jurisdictional waters, biological constraints of the site, and general impacts and mitigation measures that are intended to ensure that impacts of the project would not result in significant impacts to biological resources. However, with the passage of time since its completion in 2011, a few updates are warranted. Below are updates to elements of the Biological Constraints Letter due to relevant changes in the physical and regulatory environment.

Jurisdictional Determination of Wetlands
The Biological Constraints Letter was prepared prior to the wetland delineation conducted by Live Oak Associates in 2011 and the jurisdictional determination by the U.S. Army Corps of Engineers on 1/19/2012. Therefore an updated statement concerning jurisdictional wetlands is warranted. The 2012 jurisdictional determination is effective for a period of five years. Jurisdictional wetlands on the project site are present in the realigned Little Llagas Creek, and in the wetland swale to the west of the creek. The wetland swale is likely the former channel or a tributary to Little Llagas Creek. Table 1 shows the jurisdictional wetlands that are present on site as shown on the jurisdictional determination map of 1/19/2012.

Table 1. Jurisdictional Wetlands on the Monterey-Young Property

Feature	Area (ac)/ Length (linear feet)	Notes
Wetland seasonal channel	0.285 ac/766 LF	Little Llagas Creek channel. Man-made earthen swale supporting seasonal wetland vegetation. Seasonal flows.
Wetland swale	0.112 ac/278 LF	Unincised and faint swale that drains towards Little Llagas Creek. This swale may represent the historic location of Little Llagas Creek or a tributary channel.
Total Area jurisdictional wetlands	**0.397 ac/1,064 LF**	

The description of potential impacts and mitigation measures for Little Llagas Creek and seasonal wetlands in the Biological Constraints Letter is accurate, however the project as presently proposed on the Conceptual Site Plan would result in no temporary or permanent impacts to jurisdictional wetlands. Accordingly, no regulatory permits or compensatory mitigation would be required. Should changes in project plans require temporary or permanent impacts to jurisdictional features, the regulatory permitting and compensatory mitigation described in the Biological Constraints Letter would be required.

Tree Tally

At your request, I tallied the trees located along Little Llagas Creek as well as other trees on site that were not described in the Arborist Letter. The purpose of the tally was to fully document the presence of trees on the project site and to more accurately describe potential impacts and mitigation. In addition to the 12 trees described in the Arborist Letter there are a number of riparian trees along Little Llagas Creek and situated around the periphery of the project site. Table 2 contains the results of the tally, and Figure 1 shows the locations. Trees 1-11 are growing along Little Llagas Creek, while trees 12-20 are along the periphery of the site. These trees were not described in the Arborist Report because they may not be classified as a "Tree" or "Indigenous Tree" by the City of Morgan Hill Municipal Code, Section 12.32.030.

A number of willows (*Salix* sp.) and a single Fremont's cottonwood (*Populus fremontii*) are present along Little Llagas Creek. These trees provide cover and nesting habitat for a number of locally occurring avian species. In addition to these trees, several coyote bush (*Baccharis pilularis*) and mulefat (*Baccharis salicifolia*) are present along the banks of the creek, providing additional cover and structural diversity to the heavily altered project site. These trees and shrubs are all native to the region.

Additional trees are also present along the periphery of the site. Most of them are relatively small black walnuts (*Juglans nigra*), remnants of the old orchard that was present on site in the past. Three large stature Fremont's cottonwoods were present along the northwest property boundary.

Table 2. Additional trees not described in the Arborist Report[1]

Identification #	Species	No. of individuals
1	Red willow *Salix laevigata*	1
2	Fremont's cottonwood *Populus fremontii*	1
3	Red willow *Salix laevigata*	1
4	Arroyo willow *Salix lasiolepis*	1
5	Red willow *Salix laevigata*	1
6	Red willow *Salix laevigata*	1
7	Red willow *Salix laevigata*	1
8	Red willow *Salix laevigata*	1
9	Red willow	1

[1] Most of the trees in Table 2 do not meet the definition of "Tree" or "Indigenous Tree" per City of Morgan Hill Municipal Code, Section 12.32.030, Sections G and H.

Identification #	Species	No. of individuals
	Salix laevigata	
10	Black walnut *Juglans nigra*	4
11	Red willow *Salix laevigata*	1
12	Black walnut *Juglans nigra*	4
13	Black walnut *Juglans nigra*	1
14	Black walnut *Juglans nigra*	1
15	Black walnut *Juglans nigra*	1
16	Black walnut *Juglans nigra*	>4 (thicket)
17	Fremont's cottonwood *Populus fremontii*	1
18	Fremont's cottonwood *Populus fremontii*	1
19	Fremont's cottonwood *Populus fremontii*	1
20	Black walnut *Juglans nigra*	1

While none of the trees and shrubs along Little Llagas Creek will be removed, some of the trees along the periphery of the site will likely be removed in order to construct the proposed project. A City of Morgan Hill tree removal permit will be required for the removal of "Trees" and "Indigenous Trees", and tree mitigation requirements may be imposed. Removal of the black walnuts would be exempt from the City's tree removal permit requirements because orchard trees are not classified as "Trees" under the municipal code. If removal of the Fremont's cottonwoods in the northwest corner of the site is required for development, a tree removal permit may be required. These trees are native to the Morgan Hill region, even though this species is not specifically listed as an "Indigenous Tree" in Section 12.32.020 of the municipal code.

Removal of any of the trees on site could result in adverse impacts to nesting birds. A pre-construction survey for white-tailed kite (*Elanus leucurus*), non-listed raptors and other non-listed breeding birds as described in the Biological Constraints Letter should be conducted to avoid potentially significant impacts to nesting birds. One change in the pre-construction survey is recommended; please see the recommendation under "Special-status Species" below.

Biological Resources Impacts and Mitigation Measures
As noted in the Biological Resources Letter, the only special-status species with potential to occur on site are white-tailed kite and burrowing owl (*Athene cunicularia*). Site development during the breeding bird season (February 1 through August 31) could result in abandonment of an active nest. A pre-construction survey as described in the Biological Resources Letter should be conducted and avoidance measures implemented if active nests are observed. However, the window of time between the survey and the start of construction should be narrowed to seven days rather than 30 days. Nests can be constructed and occupied in less than 30 days, and requiring conduct of the survey to be more closely scheduled to the start of construction would help ensure that active nests would not be disturbed during construction.

While no suitable burrows or ground squirrels (*Spermophilus beecheyi*) were observed during the site visit, conditions on site could change prior to development. The pre-construction survey for burrowing owls should be conducted consistent with the requirements of the Santa Clara Valley Habitat Conservation Plan/Natural Communities Conservation Plan (see below).

Existing Conditions
Existing conditions on the project site are as characterized in the Biological Resources Report. The former agricultural fields east and west of Little Llagas Creek were disced in 2015 prior to the site visit, and as a result, vegetation in these portions of the site is sparse. A small fire in the northern portion of the creek channel earlier in 2015 charred herbaceous and shrubby vegetation.

The Santa Clara Valley Habitat Conservation Plan/Natural Communities Conservation Plan (HCP) was adopted in 2013, after the Biological Constraints Letter was prepared. Accordingly, development of the site will be covered by the HCP. Please see below for further details.

Additional development to the northwest of the site is presently under construction. While this does not alter any of the findings on biological resources, it is noted as a continuing and planned trend in the area surrounding the project site.

Santa Clara Valley HCP/NCCP
The project site falls within the HCP Plan Area and the City of Morgan Hill is a signatory to the HCP. The project consists of urban development, which is a "covered activity" under the HCP. As such, development of the site will be subject to the provisions of the HCP. The applicant will be required to submit an application for HCP coverage to the City of Morgan Hill and pay applicable fees. Species-specific survey requirements will apply.

Please let me know if you have any questions.

Sincerely,

Judy Bendix
Mosaic Associates LLC

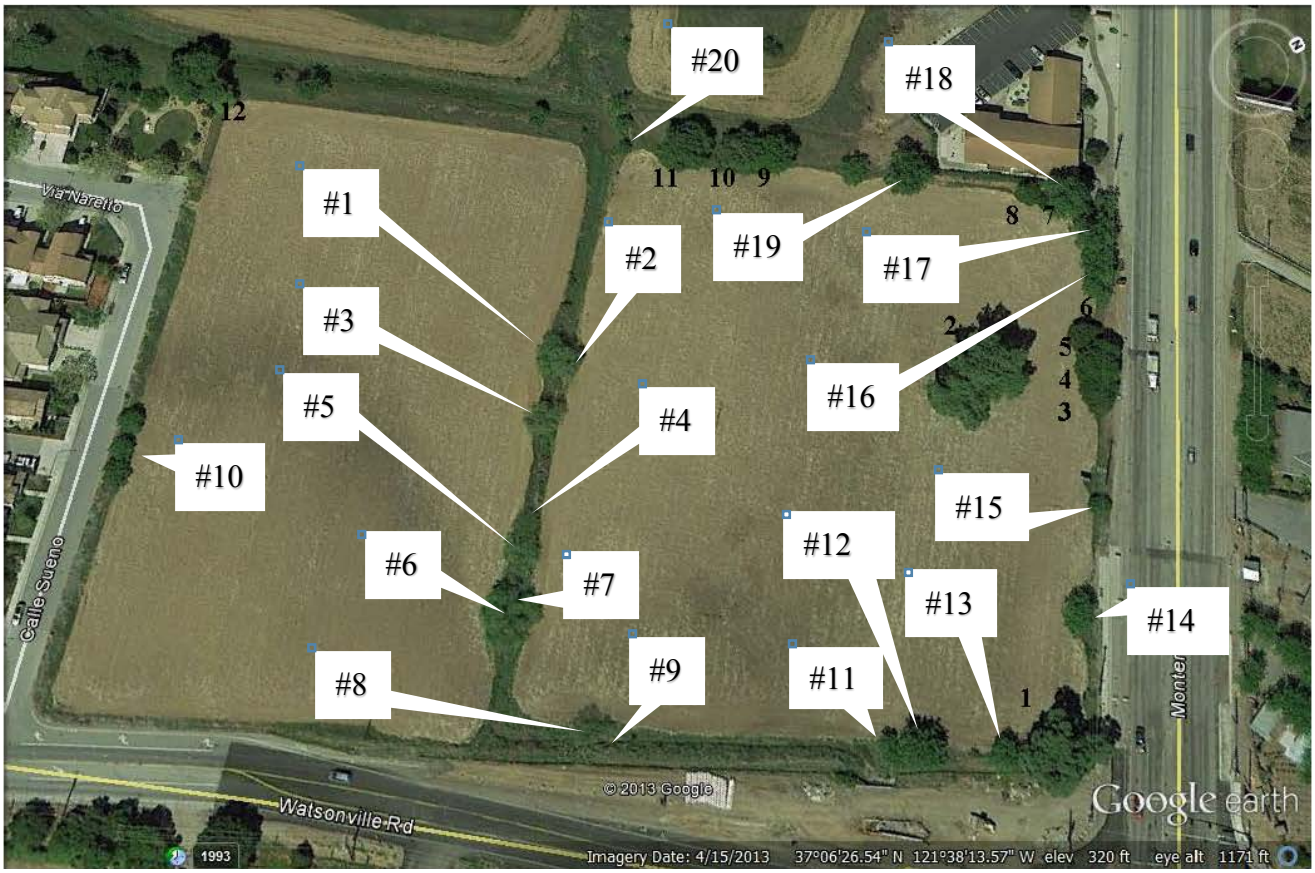


Figure 1. Additional trees not described in the Arborist Report. See Table 1 for a description of species and number of individuals.

Photo 1. Little Llagas Creek, looking north. Vegetation in the creek recently burned.

Photo 2. View of west side of property and willows along Little Llagas Creek. Upland area of the site has been disced.

Photo 3. Willows along Little Llagas Creek and uplands east of the creek.

Photo 4. Ruderal vegetation in Little Llagas Creek next to Watsonville Road.

Photo 5. Box culverts convey Little Llagas Creek flows beneath Watsonville Road bridge, and and rock-lined channel upstream of bridge.

Photo 6. Eastern side of project site with remnants of old walnut orchard.

Photo 7. Two Fremont's cottonwoods in northeast corner of site near Monterey Road.

Photo 8. Fremont's cottonwood on northern property boundary, east side of the property.

LIVE OAK ASSOCIATES, INC.
an Ecological Consulting Firm

September 6, 2011

John Moniz, CGBP
Senior Planner
Ruggeri-Jensen-Azar & Associates
8055 Camino Arroyo
Gilroy, CA 95020

RE: Biological Constraints Letter for the Watsonville Road/Monterey Highway Property in the City of Morgan Hill, Santa Clara County, California (PN 1523-01)

Dear John:

Live Oak Associates, Inc. (LOA) evaluated the biological resources of a property located on the northwest corner of Watsonville Road and Monterey Highway in the City of Morgan Hill, Santa Clara County, California. The site is an open field that is regularly disced. Additionally, a reach of Little Llagas Creek traverses the site, with at least two adjacent wetland features.

Disturbances to land supporting or surrounded by open space can damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, site disturbance may be regulated by state or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA), covered by policies and ordinances of the City of Morgan Hill, or some combination of the four. This report addresses issues related to sensitive biotic resources occurring on the study area, the federal, state, and local laws related to such resources, and mitigation measures to offset any impacts.

Field Survey

LOA ecologists Melissa Denena conducted a very brief reconnaissance level survey on April 18, 2011. The objectives of this survey were to 1) evaluate the principal habitats of the study area; 2) assess the potential of the site to support suitable habitat for special status plant or animal species or sensitive habitats (e.g., wetlands, riparian habitats); and 3) evaluate potential impacts to the biotic resources of the site and region from the future development of the lots.

Existing Condition of the Site

The existing property consists of a disced field with a few scattered trees and Little Llagas Creek flowing southerly through the central portion of the site then turning east along the southern boundary. The disced agricultural field supported at least two low-lying areas that appear to pool water seasonally on the western side of the creek; a wetland swale in the center of the property and a small wetland in the southwestern corner. No seasonal wetlands were observed on the

eastern side of the creek. However, there were pockets that supported some marginally hydrophytic vegetation that should be evaluated further. Surrounding properties consist of a mix of single-family residential developments, commercial, and agricultural.

Elevation: Site terrain is fairly level with the elevation being approximately 315 feet (95 meters) National Geodetic Vertical Datum (NGVD) in the field with the bed of Little Llagas Creek lying a few feet below.

Soils: Three soil types are present on the project site: Arbuckle gravelly loam, 0 to 2 percent slopes, San Ysidro loam, 0 to 2 percent slopes, and Zamora clay loam, 0 to 2 percent slopes. These soils are alluvial soils formed from conglomerate, metasedimentary, and sedimentary rocks. They are deep and well-drained to moderately well-drained. Arbuckle and Zamora soils are not considered to be hydric with only approximately 5 percent of San Ysidro soils considered hydric.

Vegetation: The site's vegetation reflects considerable and regular disturbances that have taken place due to regular discing. The vegetation consisted primarily of non-native species of European descent. The disced fields were dominated by typical upland species such ripgut brome (*Bromus diandrus*) and wild oats (*Avena fatua*). The wetland swale and small wetland in the southwest corner of the site were dominated by species such as Mediterranean barley (*Hordeum marinum*), Italian rye grass (*Lolium multiflorum*), and curly dock (*Rumex crispus*). Little Llagas Creek supported wetland vegetation within the channel with a few scattered trees and shrubs along its banks. The only other trees and shrubs onsite occur along the project boundaries with one large valley oak (*Quercus lobata*) within the field in eastern portion of the site.

Wildlife: A number of locally occurring wildlife species may occur on the project site. Due to the relatively small size of the site, the urban development within the vicinity of the site, the lack of connecting habitat, and the disturbed nature of the site, the species discussed below would not be expected to utilize the site regularly or for extended periods.

Little Llagas Creek provides movement and foraging habitat for several species of fish including the Sacramento sucker (*Catostomus occidentalis occidentalis*), sacramento pikeminnow (*Ptychocheilus grandis*), and mosquitofish (*Gambusia affinis*).

Several amphibian and reptilian species could onsite, particularly in Little Llagas Creek. The creek provides breeding habitat for species such as pacific treefrogs (*Hyla regilla*), western toads (*Bufo boreas halophilus*), and garter snakes (*Thamnophis* sp.). Western fence lizards (*Sceloporus occidentalis*), southern alligator lizards (*Gerrhonotus multicarinatus*), and gopher snakes (*Pituophis melanoleucus*) may also occur along the banks of the creek and within the upland field of the site.

Avian species expected to occur onsite include the American crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), rock pigeon (*Columba livia*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), western scrub-jay (*Aphelocoma californica*), northern mockingbird (*Mimus polyglottos*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), dark-eyed junco (*Junco hyemalis*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*), to name a few.

The large trees of the site provide suitable breeding habitat for the above avian species as well as raptors such as the red-tail hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and Cooper's hawk (*Accipiter cooperi*).

Mammalian species that may occur onsite include the Virginia opossum (*Didelphis virginiana*), California meadow vole (*Microtus californicus*), western harvest mouse (*Reithrodontomys megalotis*), Botta's pocket gopher (*Thomomys bottae*), ornate shrew (*Sorex ornatus*), raccoon (*Procyon lotor*), house cat (*Felis catus*), and dog (*Canis familiaris*).

Special Status Plants and Animals

Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. State and federal laws have provided the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFG. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened or endangered (CNPS 2011). Collectively, these plants and animals are referred to as "special status species."

Several special status plants and animals occur in the vicinity of the study area. A search of published accounts for all relevant special status plant and animal species was conducted for the Mt. Madonna USGS 7.5-minute quadrangle in which the project site occurs and for the eight surrounding quadrangles (Chittenden, Watsonville East, Loma Prieta, Santa Teresa Hills, Watsonville West, Gilroy, Mt. Sizer, and Morgan Hill) using the California Natural Diversity Data Base (CNDDB), Rarefind (CDFG 2011). Other sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner 1988), *Endangered and Threatened Wildlife and Plants* (USFWS 2011), *Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants* (CDFG 2011), and *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2011).

Potential project impacts to species that could occur onsite and typical mitigation requirements are discussed further below.

Jurisdictional Waters

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Game (CDFG), and the California Regional Water Quality Control Board (RWQCB).

Little Llagas Creek is considered a Water of the U.S. and State falling under the jurisdiction of the USACE, CDFG, and RWQCB. The wetland swale and wetland in the wetland portion of the

site and any other seasonal wetlands found onsite would likely fall under the jurisdiction of the RWQCB and potentially the USACE, but would not be considered jurisdictional by the CDFG.

Biological Constraints of the Site

The following describes the biotic resources of the project site that could be significantly impacted by a change in the land use of the site in the future.

Special Status Plant Species: Approximately 40 special status vascular plant species are known to occur in the general project vicinity (CDFG 2011). All would be expected to be absent to occur onsite due to the level of site disturbance, the lack of suitable habitat, and the low chances of dispersal to the site from source populations due to the lack of habitat connectivity. Therefore, state and federal laws protecting special status plants would not be relevant to development of the site.

Protected Animal Species: Approximately 25 special status animal species occur, or once occurred, regionally (CDFG 2011). Of these, all but two are considered to be either absent or unlikely to occur on the site due to the unsuitability of habitat for these species. For example, the site is not considered suitable for sensitive amphibian and reptile species such as the California tiger salamander (*Ambystoma californiense*) due to the lack of suitable aquatic habitat. Little Llagas Creek is not suitable for this breeding, the onsite seasonal wetlands do not appear to support water for a sufficient length of time (approximately three months) to support breeding, and the site is isolated from nearby populations due to the surrounding existing development, making the site unsuitable for estivation.

Special status species that may occur onsite include the white-tailed kite (*Elanus leucurus*) and burrowing owl (*Athene cunicularia*). Neither of these species was observed onsite during the April 2011 survey; however, both of these species are volant and have been known to occur within in the site vicinity thereby making it possible for individuals to use the site in the future. In addition to special status species, non-special status species avian species protected under the Migratory Bird Treaty Act could potentially breed onsite or in the immediate vicinity.

Potential impacts and mitigations for protected animal species are discussed further below.

> *White-tailed Kite, Non-listed Raptors, and Other Non-listed Breeding Birds:* The onsite trees provide suitable breeding habitat for a number of bird species. Site development during the breeding bird season (February 1 through August 31) could result in the abandonment of an active nest. The mortality of individuals that may result would constitute a significant adverse impact of the project; the loss of habitat would not constitute a significant adverse impact. The following mitigation measures would likely be warranted to ensure breeding birds are not harmed, injured, or killed as a result of a future project.
>
> Should project construction be scheduled to commence between February 1 and August 31, a pre-construction survey would be conducted by a qualified biologist for nesting birds within the onsite trees as well as all trees within 250 feet of the site. This survey would occur within 30 days of the on-set of construction. If pre-construction surveys undertaken during the nesting season locate active bird nests within or near construction zones, these

nests, and an appropriate buffer around them (as determined by a qualified biologist) would remain off-limits to construction until the nesting season is over.

Mitigation for the loss of habitat would not be required.

Burrowing Owl: If ground squirrels reestablish onsite following the recent discing, suitable habitat would be present for burrowing owls. Site development could potentially result in the mortality of burrowing owls if they move onto the site in the future. The following mitigation measures would likely be warranted to ensure burrowing owls are not harmed, injured, or killed as a result of a future project.

A pre-construction survey would be conducted by a qualified biologist for burrowing owls within 30 days of the on-set of construction. This survey would be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 1995), the Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (1997), and the City of Morgan Hill's *Citywide Burrowing Owl Habitat Mitigation Plan* (June 2003). All suitable habitats of the study area would be covered during this survey. If pre-construction surveys undertaken during the burrowing owl breeding season (February 1 through August 31) locate active nest burrows within or near construction zones, these nests, and an appropriate buffer around them (as determined by a qualified biologist) would remain off-limits to construction until the breeding season is over. During the burrowing owl non-breeding season (September 1 through January 31), resident owls may be relocated to alternative habitat. The relocation of resident owls must be according to a relocation plan prepared by a qualified biologist. Passive relocation would be the preferred method of relocation. This plan must provide for the owl's relocation to nearby lands possessing available nesting and foraging habitat.

Mitigation for the loss of habitat would not likely be required.

Full implementation of the measures similar to those identified above would mitigate impacts to special status animal species potentially occurring on the site.

Sensitive Natural Communities, Including Wetlands: Waters of the U.S. and State falling under the jurisdiction of the USACE, RWQCB, and CDFG occur onsite in the form of Little Llagas Creek. It is also likely that the seasonal swale and seasonal wetland west of the creek and any other wetlands identified onsite in the future would be considered jurisdictional by the RWQCB and potentially by the USACE. Impacts to wetland habitats and other jurisdictional waters are generally considered significant under provisions of CEQA and could constrain development of the site. To determine the extent of agency jurisdiction over these features, a formal wetland delineation should be conducted on the site. Due to the level of recent discing and survey detail approved, it was difficult to determine with certainty the full extent of onsite features during the April 2011 survey.

Potential impacts and mitigations for sensitive natural communities are discussed further below.

Little Llagas Creek and Seasonal Wetlands: Compensation measures would be required to offset temporary and permanent impacts to all Waters of the U.S. and State as a result of future site development that cannot avoid such impacts. These measures would either result

in the creation of new habitat, either onsite or offsite, as replacement for habitat lost or enhance the quality of existing habitat. Compensation measures should include a replacement-to-loss ratio of between 1:1 and 3:1 for permanent acreage impacts (acres created for each acre impacted). This would include creation of onsite or offsite habitat similar to the habitat impacted.

The applicant would also need to comply with all state and federal regulations related to impacts to these habitats. This may require obtaining a Section 404 Clean Water Act permit from the USACE, Section 401 Water Quality Certification from the RWQCB, and Section 1602 Lake or Stream Alteration Agreement from the CDFG prior to initiating any construction, if deemed necessary, and fulfilling the mitigation requirements of these permits.

Wildlife Habitat and Movement: Knowledge of the site, its habitats, and the ecology of local species permit sufficient predictions about the species that may utilize the site and the types of movements occurring in the region. The development of the site would not significantly impact wildlife habitat or movement.

Local, Regional, and State Policies/Ordinances: Should project buildout require the removal of any of the trees occurring on the site, a tree removal permit may be required by the City pursuant to Chapter 12.32 of the City's Municipal Code.

Santa Clara Valley HCP/NCCP: At least some of the sensitive resources of the site would be covered by the HCP/NCCP. If this HCP were approved prior to site development, the project would be subject to the provisions addressed in this HCP.

If you have any further questions or comments in regards to the biological analysis of the Watsonville Road/Monterey Highway Property, please feel free to contact me at your earliest convenience.

Sincerely,

Melissa Denena, M.S.
Director of Ecological Services

APPENDIX A:
SIGNIFICANCE CRITERIA AND RELEVANT GOALS, POLICIES, AND LAWS

CEQA: Approval of general plans, area plans, and specific projects is subject to the provisions of the California Environmental Quality Act (CEQA). The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are constructed. For example, changing land use designation may allow an increase in the amount of existing vegetation that is removed for any future development. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc. may replace those species formerly occurring on a site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. These impacts may be considered significant or not. According to the California Environmental Quality Act, "significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Specific project impacts to biological resources may be considered "significant" if they will (discussed further in section titles "*Constraints to Proposed Construction Activities")*:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with the provisions of an adopted Habitat Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065 states that a project may trigger the requirement to make a "mandatory findings of significance" if "the project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory."

Threatened and Endangered Species: State and federal "endangered species" legislation has provided the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting plant and animal species of

limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as "species of special status." Permits may be required from both the CDFG and USFWS if activities associated with a proposed project will result in the "take" of a listed species. "Take" is defined by the state of California as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). "Take" is more broadly defined by the federal Endangered Species Act to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFG and the USFWS are responding agencies under the California Environmental Quality Act (CEQA). Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

Migratory Birds and Birds of Prey: State and federal law also protect most bird species. The Federal Migratory Bird Treaty Act (FMBTA: 16 U.S.C., scc. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, (1992), which states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFG.

Wetlands and Other "Jurisdictional Waters: Natural drainage channels and adjacent wetlands may be considered "Waters of the United States" (hereafter referred to as "jurisdictional waters") subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands:
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As recently determined by the United States Supreme Court in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision), channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. However, the U.S Supreme Court decisions *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* impose a "significant nexus" test for federal jurisdiction over wetlands. In June 2007, the USACE and Environmental Protection Agency (EPA) established guidelines for applying the significant nexus standard. This standard includes 1) a case-by-case analysis of the flow characteristics and functions of the tributary or wetland to determine if they significantly affect the chemical, physical, and biological integrity of downstream navigable waters and 2) consideration of hydrologic and ecologic factors (EPA and USACE 2007).

The USACE regulates the filling or grading of such waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by “ordinary high water marks” on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions select for plant species known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils saturated intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987).

All activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE (Wetland Training Institute, Inc. 1991). Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued until the Regional Water Quality Control Board (RWQCB) issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards. The filling of isolated wetlands, over which the USACE has disclaimed jurisdiction under the SWANCC decision, is regulated by the RWQCB. It is unlawful to fill isolated wetlands without filing a Notice of Intent with the RWQCB. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System (NPDES) permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

The California Department of Fish and Game has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1602 of the California Fish and Game Code (2003). Activities that would disturb these drainages are regulated by the CDFG via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented which protect the habitat values of the drainage in question.

Local, Regional, and State Policies/Ordinances: The City of Morgan Hill has a tree ordinance (Chapter 12.32 of the City’s Municipal Code) which seeks to protect all trees having a single stem or trunk with a circumference of forty inches or greater for nonindigenous species (except those in residential zones) and eighteen inches or greater for indigenous species measured at four and one-half feet vertically above the ground or immediately below the lowest branch. Indigenous trees are defined by the City as any tree that is native to the Morgan Hill region, including oaks (all types), California bays, madrones, sycamore and alder. The ordinance states that “it is unlawful for any person to cut down, remove, poison or otherwise kill or destroy, or

cause to be removed any tree or community of trees on any city or private property without first securing a permit as provided in this chapter; provided, however, that a permit shall not be required for developments which have been reviewed and approved by the planning commission or architectural and site review board and the tree removal conforms with the landscape plans of those developments." There are no other known local, regional, or state policies/ordinance such as an adopted Habitat Conservation Plan relevant to the project site.

Santa Clara Valley HCP/NCCP: Six local partners (the County of Santa Clara, Santa Clara Valley Transportation Authority, Santa Clara Valley Water District, and the Cities of San Jose, Gilroy and Morgan Hill) and three wildlife agencies (the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service) are in the process of designing a multi-species habitat conservation plan for Santa Clara Valley. The study area of the Santa Clara Valley Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP) primarily covers southern Santa Clara County. The HCP/NCCP would address listed species and species that are likely to become listed during the plan's 50-year permit term. The covered species include, but are not limited to, western burrowing owl, California tiger salamander, and California red-legged frog. The (HCP/NCCP) Planning Agreement requires that the agencies comment on reportable interim projects and recommend mitigation measures or project alternatives that would help achieve the preliminary conservation objectives and not preclude important conservation planning options or connectivity between areas of high habitat value.

ATTACHMENT 5

LAND OF YOUNG

HYDRAULIC IMPACT STUDY

BY

SCHAAF & WHEELER

FEBRUARY 16, 2016

ENCLOSURE

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS

870 Market Street, Suite 1278
San Francisco, CA 94102-2906
415-433-4848
FAX 415-433-1029
swsf@swsv.com

MEMORANDUM

TO: Yvonne Arroyo

DATE: February 16, 2016

FROM: Sarah Rahimi, PE

JOB #: MANA.01.14

SUBJECT: **Lands of Young Hydraulic Impact Study**

Introduction and purpose

Schaaf & Wheeler has been contracted by Presidio Mana Young to assess the potential impacts from the proposed site plan revisions at the Lands of Young on the Federal Emergency Management Agency (FEMA) 100-year water surface elevations on West Little Llagas Creek. The Lands of Young is a two phased residential development project. The first phase (Phase 1) of the project includes developing the subject property on the east side of West Little Llagas Creek. The second phase (Phase 2) of the project includes developing the subject property on the west side of West Little Llagas Creek and will be implemented once the Santa Clara Valley Water District's Reach 7A diversion channel and new culvert on Watsonville Road are operational (Figure 1). Each phase of the project will have a FEMA LOMR (Letter of Map Revision) completed for the effective Flood Insurance Rate Map for West Little Llagas Creek.

Figure 1. Study Area

The Project Site is intersected by West Little Llagas Creek and is within the FEMA Special Flood Hazard Area (i.e. 100-year floodplain). The City of Morgan Hill may allow 0.1 foot increase in the water surface elevation upstream of the development, and cumulative impacts of up to 1.0 feet as a result of other developments. The proposed development channel setbacks on West Little Llagas Creek may have hydraulics impacts on the upstream water surface elevation. Based on requirements by FEMA and the City of Morgan Hill, the floodplain conditions were analyzed to determine the maximum development potential of the project site.

Model Configuration

Duplicate Effective Model

The existing *Effective Model* (5012013) was used to develop the duplicate effective model in HEC-RAS. The U.S. Army Corps of Engineers (USACE) Hydrologic Engineering Center's River Analysis System (HEC-RAS) computer program supersedes its HEC-2. The HEC-2 effective model file was obtained from the Santa Clara Valley Water District's website:
http://www.valleywater.org/Services/Hec_data_library_download.aspx

The *Duplicate Effective Model* was recreated in HEC-RAS. This includes recreating the flow splits at XS 282 and the ineffective flow areas at the applicable cross sections. The model ties in at the downstream end upstream of the Union Railroad (XS 264) at 318.5 ft (NAVD) and at the upstream end at Edes Court (XS 342) at 332.3 ft (NAVD) per the effective FIS, see profile panels 160P – 161P (Feb 19, 2014). As necessary the following conversion was used to convert the vertical datum from NGVD to NAVD:

$$NAVD = NGVD + 2.85\ Feet$$

There is approximately a 0.3 foot difference in WSELs between the effective and duplicative effective model; as well as slight flow differences downstream of the lateral weirs. These small differences are due to the fact that HEC-RAS applies improved and more modern computational procedures that were not available when HEC-2 was developed. These changes between HEC-2 and HEC-RAS include computational differences in conveyance, bridge and culvert hydraulics, critical depth, and calculation tolerance. These computational differences will create small differences in the model results.

Thus, this model was used as the baseline to ascertain the impact that Phase 1 of the Project would have on the water surface elevations in West Little Llagas Creek. Only Phase 1 of the Project was modeled. Phase 2 was not modeled because once the bypass channel is connected; the site will no longer be subject to flooding. As discussed above, Phase 2 of the project will be built once the Reach 7A diversion channel is operational.

Corrective Duplicate Effective Model (Existing)

Since existing effective cross sections were already located directly upstream (XS 294) and downstream (XS 290) of the project site, no additional cross sections were added to the model. These three cross sections were updated with the existing topography provided by RJA. Furthermore, the new Watsonville road alignment and culvert replacement were configured in model. XS 284 and XS 282 were updated to reflect the new road alignment, the new culvert geometry, and channel inverts (Figure 2). The model did not include any channel changes downstream of XS 282, when compared to the City's as-builts. XS 294 through XS 282 were the only cross sections updated in this model because these cross sections were located near or at the project site. No ineffective flows areas were changed from the duplicate effective model. This model is considered the *Existing Model*, which the *Project Model* and *Cumulative Developments Model* will be compared against.

In comparison to the *Duplicate Effective Model* results, there is decrease in water surface elevation upstream of the Watsonville Road culvert in comparison to the *Existing Model* results. This decrease is due to the new culvert location and geometry.

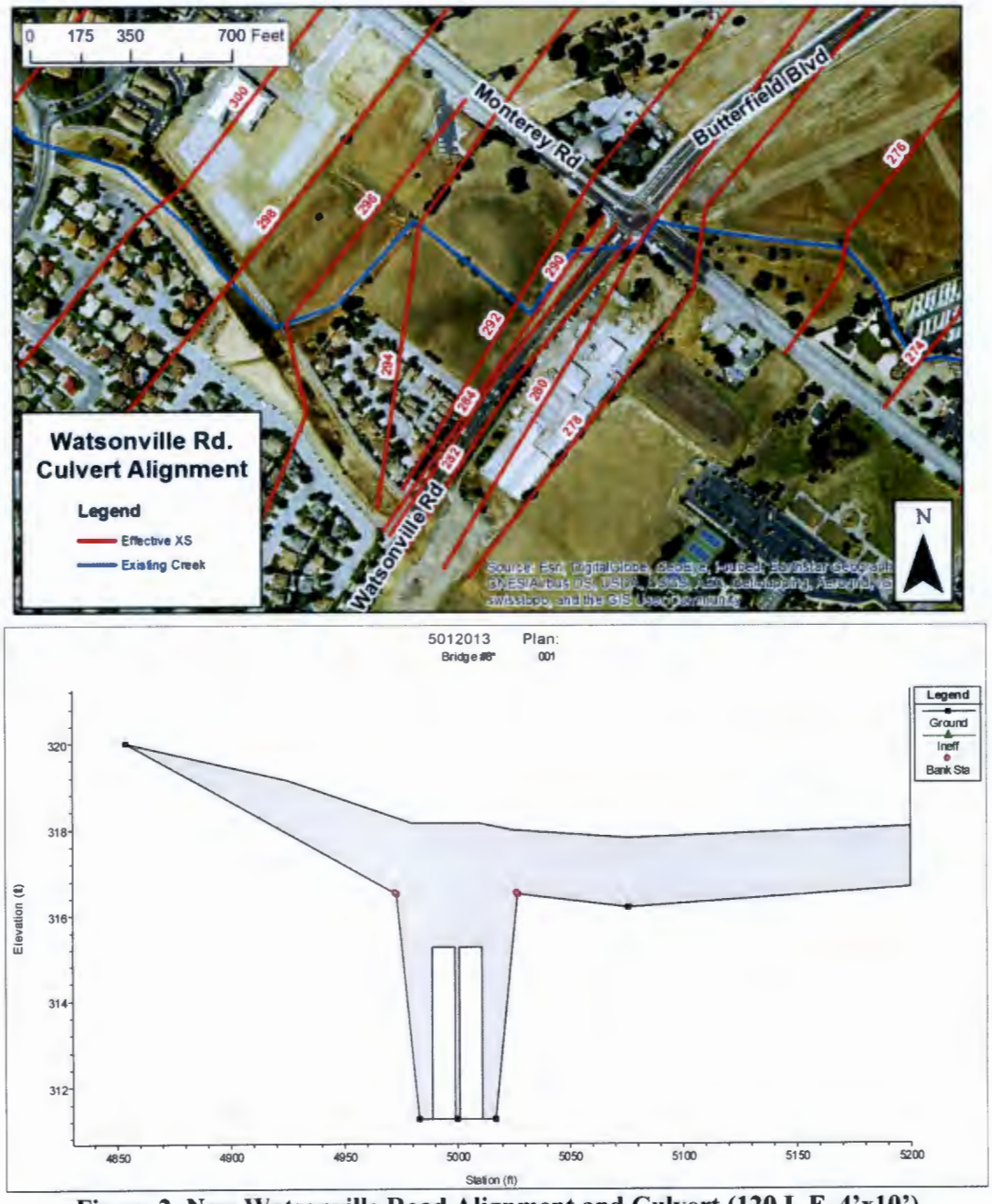


Figure 2. New Watsonville Road Alignment and Culvert (120 L.F. 4'x10')

Project Model

This *Existing Model* of West Little Llagas Creek was utilized to determine the hydraulic impacts of Phase 1 (assuming effective flows through the site). The model was modified with the channel setbacks and proposed grading, based on the site plans prepared by RJA (September, 2015), to determine the potential hydraulic impacts from the development. Setbacks were modeled as normal blocked obstruction areas measured from the creek centerline at XS 290 (downstream of site) and XS 294 (upstream of site). This

model is considered the *Project Model*. The location of Phase 1 is shown with the effective model cross sections in Figure 3.

Figure 3. Phase 1: East Side Development

Cumulative Developments Model

Furthermore, the cumulative impacts of other developments upstream of the project site not reflected in the effective model were also investigated. This analysis included adding in the developments from approximately Monterey Hwy to La Crosse Street, and includes the recently permitted Diamond Creek development. These developments were modeled as normal blocked obstructions, with distances measured from the creek centerline. The developments configured in the *Cumulative Developments Model* are shown in pink in Figure 4, with the project site outlined in blue.

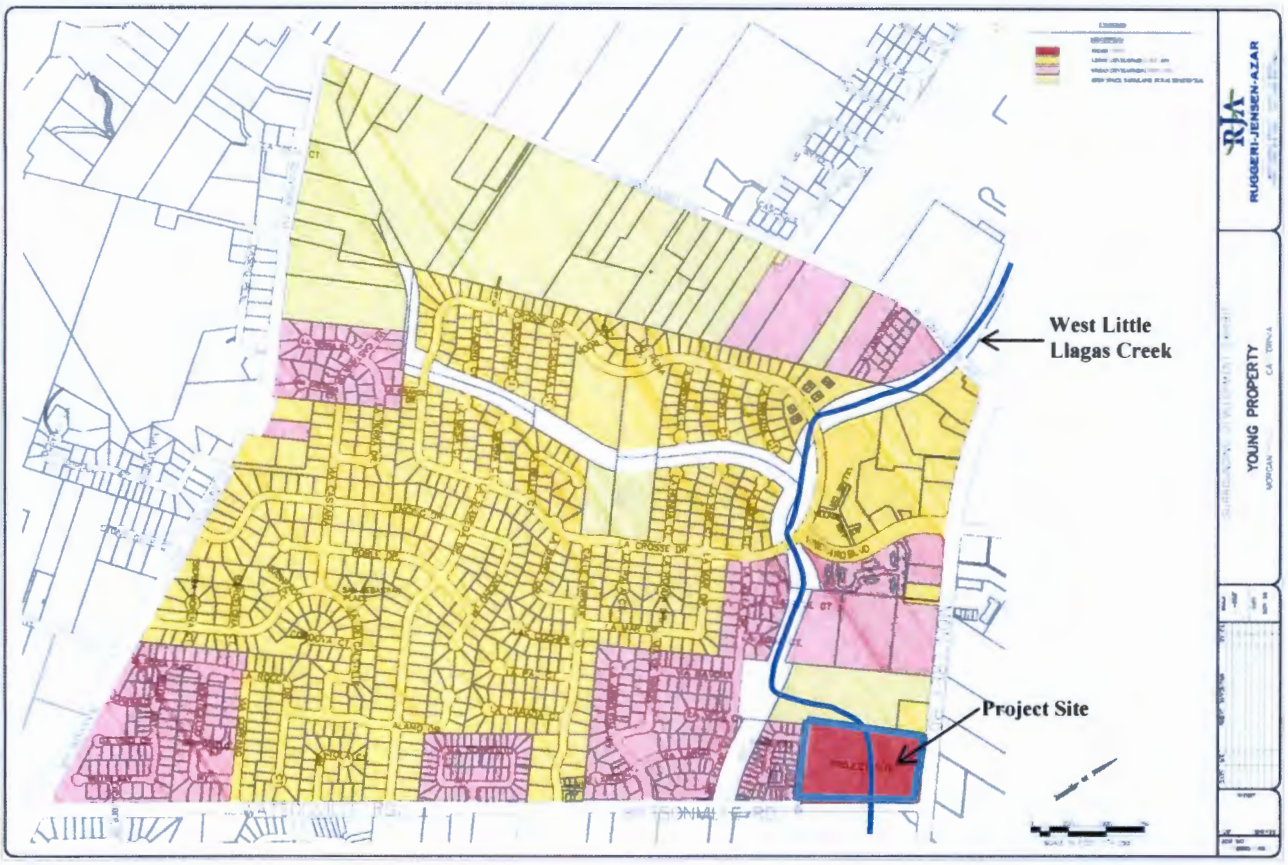


Figure 4. Developments Upstream of Project Site

Results

Project Model

Phase 1 of the Project showed less than a 0.1 feet impact to the upstream West Little Llagas Creek water surface elevations. Results from the *Project Model* are compared against the respective *Existing Model* and are summarized in Table 1 below. Figure 5 through Figure 7 plot the cross sections through the project site and show the blocked obstructions to model the proposed development.

Table 1: 100-yr Water Surface Elevations - West Little Llagas Creek

	Phase 1		
River station XS	Existing WSEL (ft, NAVD)	Project WSEL (ft, NAVD)	Difference (ft)
316	325.35	325.34	-0.01
314	323.64	323.70	0.06
312	323.79	323.82	0.03
310	323.74	323.78	0.04
304	323.68	323.71	0.03
302	323.69	323.72	0.03
300	323.31	323.36	0.05

River station XS	Phase 1		
	Existing WSEL (ft, NAVD)	Project WSEL (ft, NAVD)	Difference (ft)
298	323.23	323.29	0.06
296	323.02	323.10	0.08
294*	322.74	322.83	0.09
292*	322.69	322.71	0.02
290*	322.54	322.52	-0.02
284	322.52	322.51	-0.01
282	322.44	322.42	-0.02
280	322.44	322.42	-0.02
278	320.02	320.01	-0.01
276	319.71	319.71	0.00

*Cross sections through project site

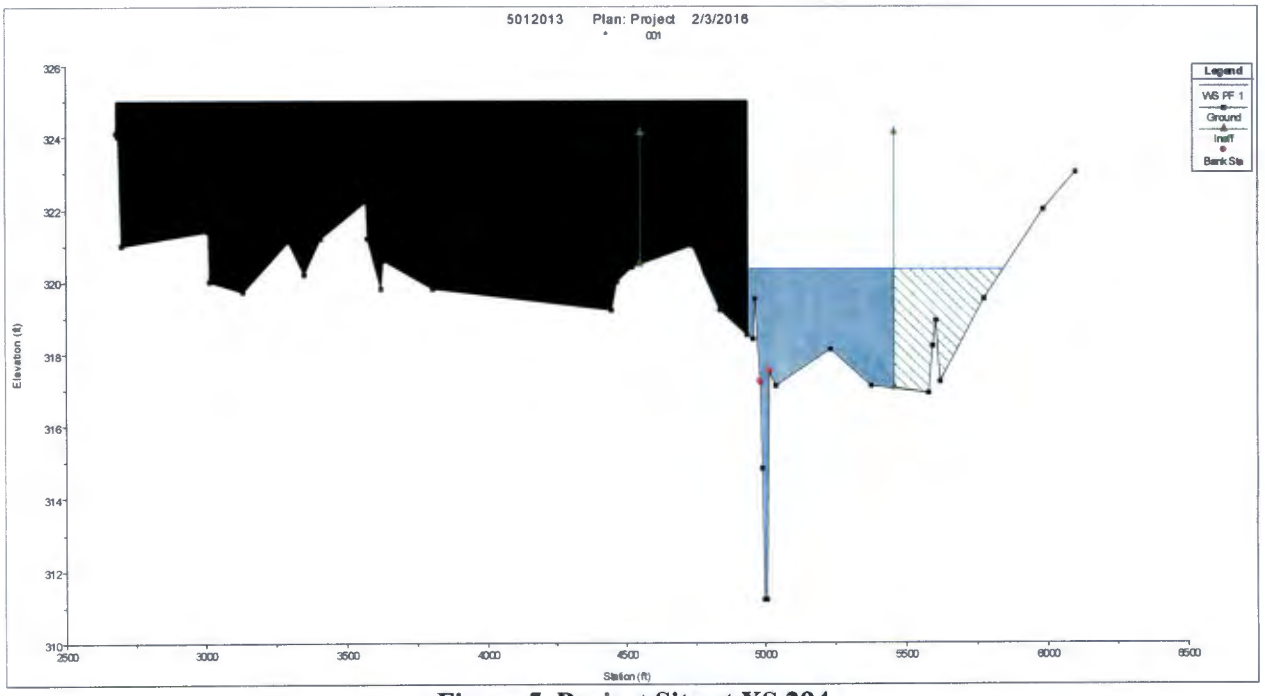


Figure 5. Project Site at XS 294

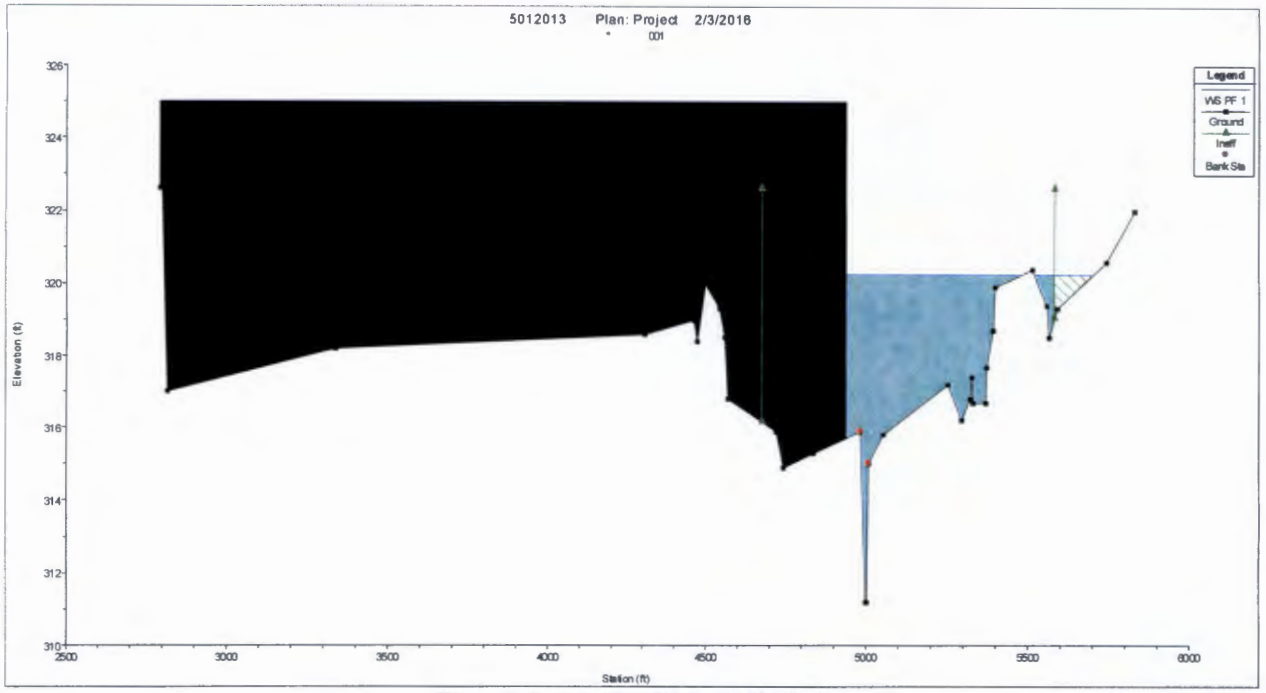


Figure 6. Project Site at XS 292

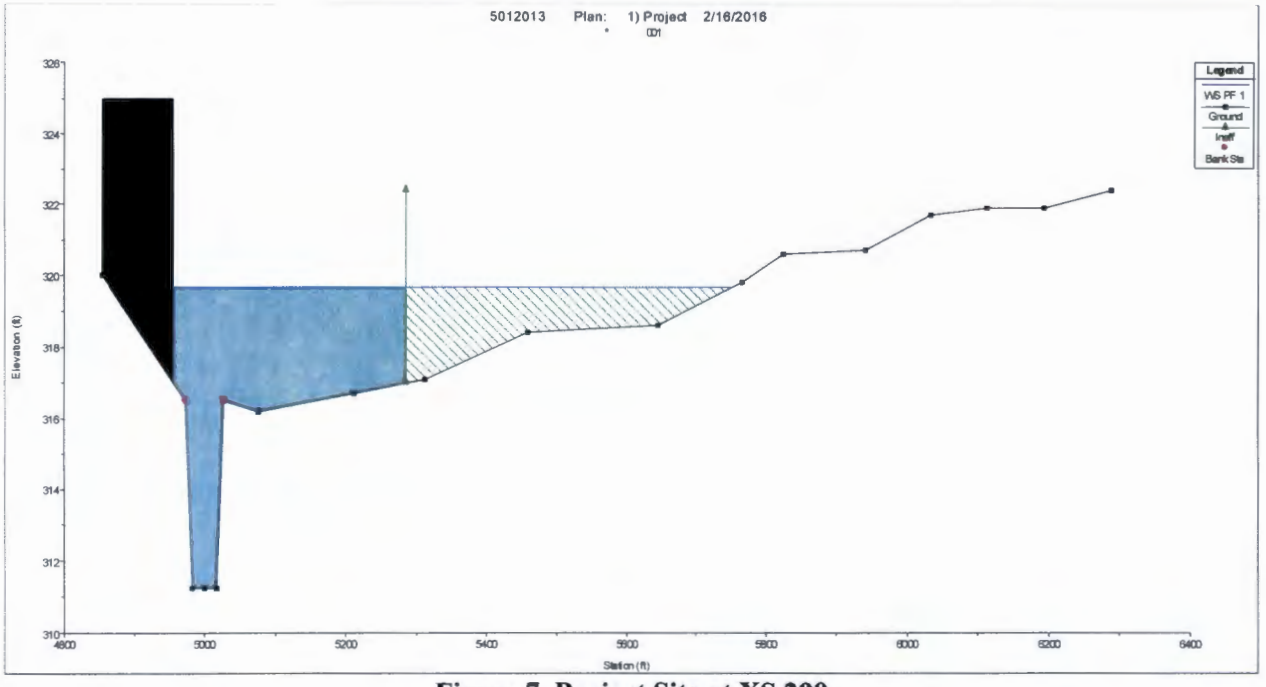


Figure 7. Project Site at XS 290

Results

Cumulative Development Model

The cumulative impacts from the additional developments upstream of the project site created a maximum increase in water surface elevation of approximately 0.4 feet as shown in Table 2 and Figure 8.

Therefore, the cumulative effect of the proposed development when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood more than one foot at any point.

Table 2: 100-yr Water Surface Elevations - West Little Llagas Creek

River Stationing XS	Existing WSEL(NAVD ft)	Cumulative + Project WSEL (NAVD ft)	Difference (ft)
316	325.4	325.3	0.1
314	323.6	324.0	0.4
312	323.8	324.0	0.2
310	323.7	324.0	0.3
304	323.7	323.9	0.3
302	323.7	323.9	0.2
300	323.3	323.6	0.3
298	323.2	323.4	0.2
296	323.0	323.2	0.2
294*	322.7	322.9	0.2
292*	322.7	322.7	0.0
290*	322.5	322.5	0.0
284	322.5	322.5	0.0
282	322.4	322.4	0.0

*Cross sections through project site

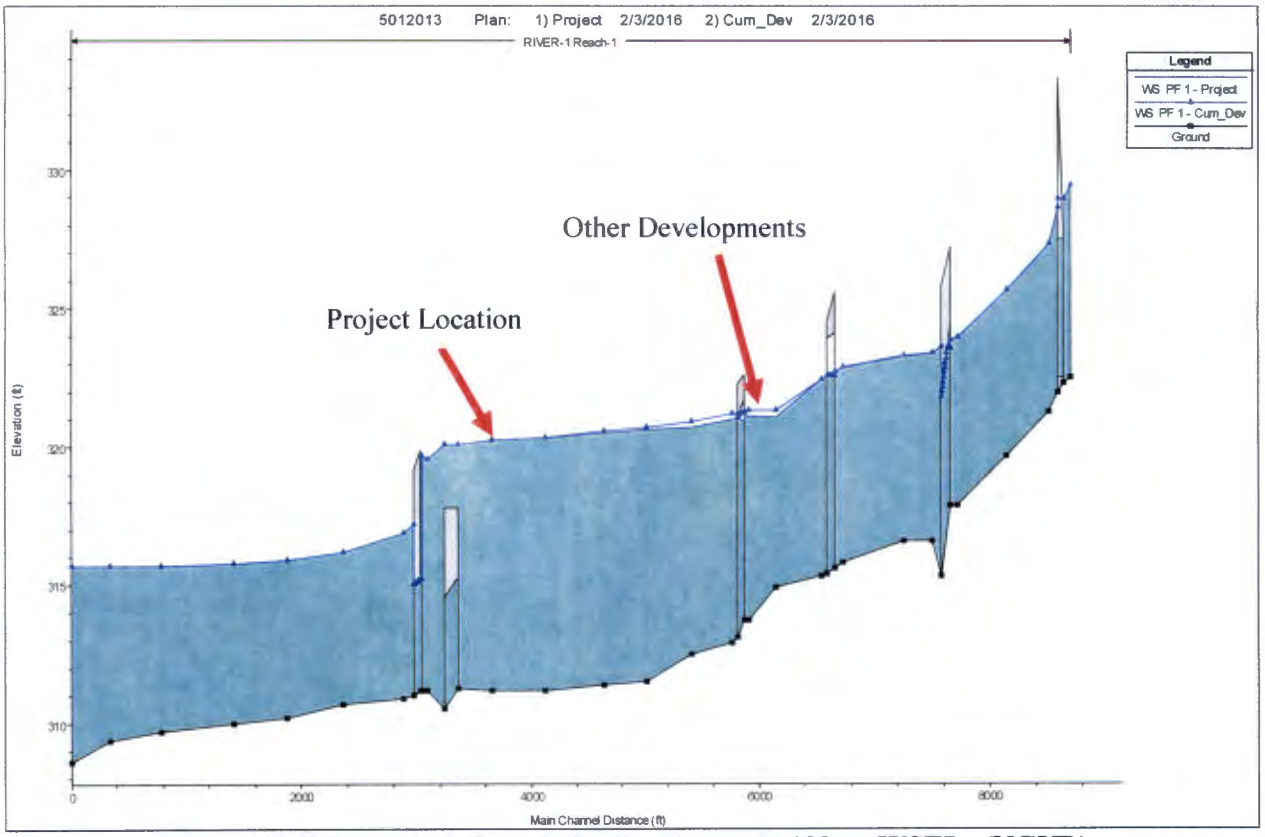


Figure 8. Existing and Cumulative Development 100-yr WSELs (NGVD)

Conclusion

Based on our hydraulic analyses using the FIS effective model of West Little Llagas Creek, the project shows an impact of less than 0.1 feet to the creek during Phase 1. Phase 2 of the project will be built once the Reach 7 improvements are completed, as the site will no longer be subject to flooding. The cumulative impacts of the other developments upstream of the project site were also investigated. Cumulatively, the upstream developments resulted in an impact of less than 1.0 feet to the water surface elevations in West Little Llagas Creek.

Schaaf & Wheeler found the hydraulic impact to be within the City's requirements using the FIS effective model and expects an increase of no more than 0.1 feet in the 100-yr water surface elevation from the proposed Phase 1 setbacks on West Little Llagas Creek at the Project Site. There is no indication that the proposed site modifications would significantly increase flood risk in the region during a 100-yr event.

5750 Almaden Expressway, San Jose, CA 95118-3614 | (408) 265-2600 | www.valleywater.org

Santa Clara Valley Water District

File: 33014
West Little Llagas Creek

February 23, 2016

Mr. Charlie Ha, Assistant Engineer
Development Services Center
Public Works – Engineering
City of Morgan Hill
17575 Peak Avenue
Morgan Hill, CA 95037-4128

Subject: Presidio Mana Young Floodplain Study

Dear Mr. Ha:

The Santa Clara Valley Water District (District) has reviewed the revised floodplain study prepared by Schaaf and Wheeler, dated February 16, 2016 (copy enclosed). The submittal includes four models. The first model is the effective FEMA FIS HEC-2, prepared by Nolte and Associates in 1992, converted to HEC-RAS (Duplicate Effective Model). This model was modified to include current topography and channel conditions starting at the new Watsonville Road culvert and extending upstream of the project site under today's existing condition (Existing Model). This existing condition was then modified to include the development blockage for Phase 1 of the Presidion Mana Young development at FIS cross sections 290, 292, and 294 (Project Model). Finally, a fourth model was prepared that included existing development, along with the proposed development (Cumulative Developments Model).

The study shows that the Duplicate Effective Model produced water surface elevations approximately 0.3 feet lower than the effective FEMA model which was attributed to computational differences between HEC-RAS and HEC-2. This difference is within the normal range for conversion from HEC-2 to HEC-RAS. When the Duplicate Effective Model was created, the water surface elevations lowered in the area of the project site which was attributed to the channel and culvert improvements at Watsonville Road. As stated in the report, the project increases water surface elevations up to 0.09 feet when compared to the existing condition and up to 0.4 feet when considered cumulatively with existing development not reflected in the effective FEMA FIS HEC-2 model. As noted in the report, only Phase 1 of the development, located between West Little Llagas Creek and Monterey Road, was analyzed. Phase 2 will not be constructed until the Upper Llagas Creek flood protection project has been constructed and FEMA revises the FIS such that this site is no longer in the FEMA floodplain.

It will be the decision of the City of Morgan Hill (City) floodplain administrator to determine the significance of the increases in water surface elevation due to the development alone and when considered cumulatively with existing development in the area. The District recommends the City adopt the "No Adverse Impact" floodplain management principle developed by the Association of State Floodplain Managers in addition to tracking additional developments in this

area of the West Little Llagas Creek floodplain to ensure the cumulative impact does not violate NFIP or City floodplain regulations or cause an adverse impact onto neighboring properties in the floodplain. The District recommends that all other aspects for development of the site be in accordance with the Guidelines and Standards for Land Use Near Streams, including any plantings along West Little Llagas Creek. The hydraulic analysis appears to be in accordance with standard engineering practice utilizing the information available. The District recommends the City obtain a final copy of the report signed and stamped by the registered engineer who prepared it.

Enclosed is a copy of District Invoice No. 33014-2 for $4665.40 which is due and payable from the applicant, Presidio Mana Young, LLC., for the review of the hydraulic study. The District requests that the City not provide final approvals for the project until Invoice No. 33014-2 is paid in full.

If you have any questions, please contact me at (408) 630-2319, or at yarroyo@valleywater.org. Please reference District File No. 33014 on future correspondence regarding this project.

Sincerely,

Yvonne Arroyo
Associate Engineer
Community Projects Review Unit

Enclosures:
1. Lands of Young Hydraulic Impact Study dated February 16, 2016
2. Invoice No. 33014-2

cc: Mr. Orville T. Power, Managing Partner, Mana Investments, op@manainv.com
Mr. Ross Doyle, Planning Project Manager, RDoyle@rja-gps.com

S. Tippets, Y. Arroyo, D. Mody, File

ATTACHMENT 6

NOISE ASSESSMENT STUDY

FOR THE

PLANNED ATTACHED SINGLE-FAMILY DEVELOPMENT

LANDS OF YOUNG

MONTEREY ROAD AND WATSONVILLE ROAD

MORGAN HILL

BY

EDWARD L. PACK ASSOCIATES, INC.

AUGUST 26, 2015

EDWARD L. PACK ASSOCIATES. INC.

1975 HAMILTON AVENUE
SUITE 26
SAN JOSE, CA 95125

Acoustical Consultants

TEL: 408-371-1195
FAX: 408-371-1196
www.packassociates.com

August 26, 2015
Project No. 47-015

Mr. Fritz Geier
Geier & Geier Consulting, Inc.
P.O. Box 5054
Berkeley, CA 9705

Subject: Noise Assessment Study for the Planned Attached Single-Family Development, Lands of Young, Monterey Road and Watsonville Road, Morgan Hill

Dear Mr. Geier:

This report presents the results of a noise assessment study for the planned attached single-family development on the Lands of Young at Watsonville Road and Monterey Road in Morgan Hill, as shown on the Conceptual Site Plan, Ref. (a). The noise exposures at the site were evaluated against the standards of the City of Morgan Hill General Plan Noise Element, Ref. (b). An analysis of the on-site noise the measurements indicates that the noise environment is created primarily by traffic sources on Watsonville Road and Monterey Road traffic sources. Noise from the Royal Oaks Mushroom Farm, which is included in the Watsonville Road noise data set, is sometimes audible at the site, but the overall noise environment is not significantly impacted. The results of the analysis reveal that the exterior noise exposures at homes along Monterey Road and Watsonville Road will exceed the limits of the City of Morgan Hill Noise Element standards. Mitigation measures will be required. The noise exposures at the common area will be within the limits of the standards. The interior noise exposures and maximum noise levels will be within the limits of the standards. Noise mitigation measures for the common area and the interior living spaces will not be required.

Sections I and II of this report contain a summary of our findings and recommendations, respectively. Subsequent sections contain site, traffic and project descriptions, analyses and evaluations. Appendices A, B and C, attached, contain the list of references, descriptions of the standards, definitions of the terminology, descriptions of the instrumentation used for the field survey, and the on-site noise measurement data and calculation tables.

I. Summary of the Findings

A. Noise Standards and Criteria

City of Morgan Hill Noise Element

The noise exposures presented herein were evaluated against the standards of the City of Morgan Hill Noise Element, which utilizes the Day-Night Level (DNL) 24-hour descriptor to define acceptable noise exposures for various land uses. The standards specify a limit of 60 decibels (dB) DNL at single-family exterior living areas.

A limit of 45 dB DNL is specified for interior living spaces. In addition, the Noise Element specifies that when the exterior noise exposure is greater than 60 dB DNL, the *maximum instantaneous* noise levels shall not exceed 50 dBA in bedrooms and 55 dBA in other living spaces. The exterior noise exposures at the planned building facades along Monterey Road and along Watsonville Road will be higher than 60 dB DNL under existing and future conditions. Thus, the interior maximum noise limits are applicable

A. Exterior Noise Exposures

The noise exposures shown below are without the application of mitigation measures and represent the noise environment for project conditions.

- The existing exterior noise exposure at the most impacted private courtyards closest to Monterey Road, 85 ft. from the centerline, is 66 dB DNL. Under future traffic conditions, the noise exposure is expected to remain at 66 dB DNL. Thus, the noise exposures will be up to 6 dB in excess of the City of Morgan Hill Noise Element standards.

- The existing exterior noise exposure at the most impacted rear and side yards closest to Watsonville Road, 133 ft. from the centerline, is 61 dB DNL. Under future traffic conditions, the noise exposure is expected to increase to 64 DNL. Thus, the noise exposures will be up to 4 dB in excess of the City of Morgan Hill Noise Element standards.

- The existing exterior noise exposure at the most impacted common area, 195 ft. from the centerline of Monterey Road, will be 58 dB DNL. Under future traffic conditions, the noise exposure is expected to remain at 58 DNL. Thus, the noise exposures will be within the 60 dB DNL limit of the City of Morgan Hill Noise Element standards.

The future 60 dB DNL noise contours will be 220 ft. from the centerline of Monterey Road and 230 ft. from the centerline of Watsonville Road.

- The exterior L_{max} values at the planned building setback from Monterey Road, 90 ft. from the centerline, ranged from 63.7 to 73.0 dBA.

- The exterior L_{max} values at the planned building setback from Watsonville Road, 140 ft. from the centerline, ranged from 55.9 to 67.2 dBA.

As the noise exposures in the exterior living areas of the project will exceed the limits of the City of Morgan Hill Noise Element, noise mitigation measures will be required.

B. Interior Noise Exposures and Noise Levels

- The interior noise exposures in the most impacted living spaces closest to Monterey Road will be 41 dB DNL under existing and future traffic conditions. Thus, the noise exposures will be within the 45 dB DNL limit of the City of Morgan Hill Noise Element standards.

- The interior noise exposures at the most impacted living spaces closest to Watsonville Road will be 35 and 38 dB DNL under existing and future traffic conditions, respectively. Thus, the noise exposures will be within the 45 dB DNL limit of the City of Morgan Hill Noise Element standards.

- The interior maximum noise levels in the most impacted living spaces along Monterey Road will range from 38.7 to 48.0 dBA. Thus, the interior maximum noise levels will be within the 50 dBA limit for bedrooms and the 55 dBA limit for other living spaces.

- The interior maximum noise levels in the most impacted living spaces along Watsonville Road will range from 30.9 to 42.2 dBA. Thus, the interior maximum noise levels will be within the 50 dBA limit for bedrooms and the 55 dBA limit for other living spaces.

As the maximum noise levels are produced by singular noise sources, increases in future traffic volume do not affect the maximum noise levels.

The interior noise exposures and noise levels will be within the limits of 45 dB DNL and 50/55 dBA maximum limits of the standards of the City of Morgan Hill Noise Element. Noise mitigation measures for the project interiors will not be required.

C. Construction Noise Impacts

Short-term construction impacts may be created during construction of the development. Construction equipment generates noise levels in the range of 75 to 95 dBA at a 30 ft. distance from the source. Because of the close proximity of the site to the nearby residences, there is potential for construction noise to impact the residences. Noise from construction equipment dissipates at the rate of 6 dB per doubling of the distance from the source to the receiver. At receptor locations approximately 60 ft. from the site, construction noise will be in the range of 69 to 89 dBA, which would result in noticeable to loud noise conditions. At receptor locations approximately 450 ft. from the site, construction noise will be in the range of 51 to 71 dBA, which would result in relatively quiet to noticeable noise conditions. Since construction is carried out in several reasonably discrete phases, each has its own mix of equipment and consequently, its own noise characteristics. Generally, the site preparation requires the use of heavy equipment such as bulldozers, loaders, scrapers, and diesel trucks. Upon completion of the project, the area's sound levels will reduce essentially to the predicted traffic noise exposures analyzed in this study.

Over the course of a construction day, the noise exposure is expected to be up to 64 dB DNL at the residences currently under construction to the north and up to 46 dB DNL at the existing residences across Calle Sueno to the west. Construction noise is also likely to be audible in some of the offices adjacent to the north.

Although construction noise is predicted to be less than significant to nearby residences, general mitigation measures are recommended to minimize the potential for annoyance. The recommended measures are described in Section II.

II. Recommendations

A. Exterior Noise Control

To achieve compliance with the 60 dB DNL limit of the City of Morgan Hill Noise Element standards for the noise impacted courtyards at the sides of certain buildings exposed to Monterey Road or Watsonville road traffic noise, the following noise control barrier will be required.

- Construct 6 ft. high acoustically-effective barriers at the courtyards at the sides of the building shown on Figure 1. The barrier returns shall be connected air-tight to the sides of the homes. The barrier height is in reference to the nearest building pad elevation.

To achieve an acoustically-effective barrier it must be constructed air-tight, i.e., without cracks, gaps or other openings, and must provide for long term durability. Barriers can be constructed of masonry, wood, concrete, stucco, earth berm or a combination thereof and must have a minimum surface weight of 2.5 lbs./sq. ft. If wood fencing is used, homogeneous sheet materials are preferable to conventional wood fencing as the latter has a tendency to warp and form openings with age. However, high quality air-tight tongue-and-groove, board and batten or shiplap construction can be used. All connections with posts, pilasters or building shells must be sealed air-tight. No openings are permitted between the upper barrier components and the ground. Gates may be incorporated into the barriers, however, they must be of the same weight material as the main barrier and must seal tight when closed. The gap at the bottom of the gate shall be less than 1".

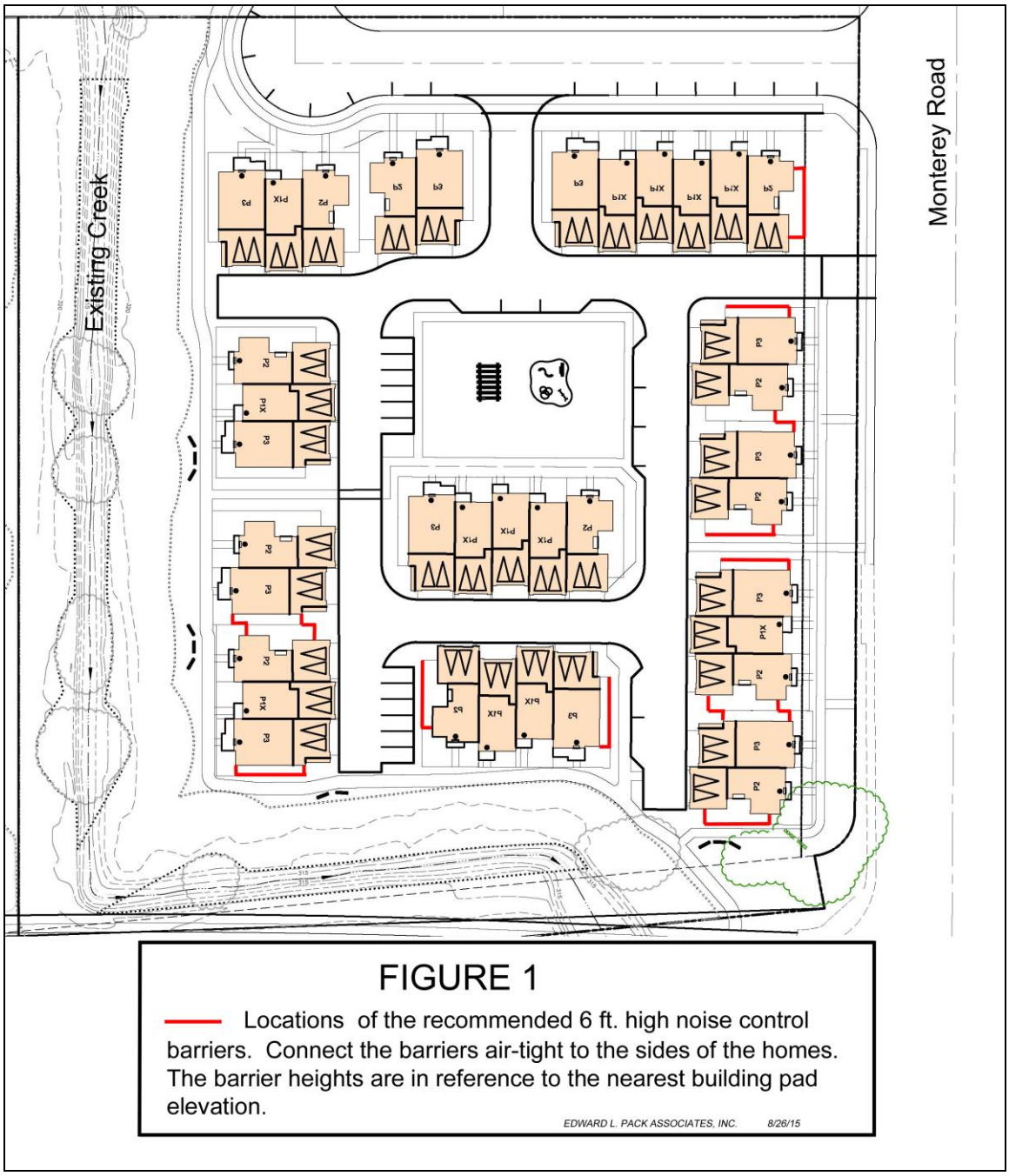


FIGURE 1

Locations of the recommended 6 ft. high noise control barriers. Connect the barriers air-tight to the sides of the homes. The barrier heights are in reference to the nearest building pad elevation.

EDWARD L. PACK ASSOCIATES, INC. 8/26/15

The implementation of the above recommended barriers will reduce the noise exposures in the noise impacted courtyards to 60 dB DNL or lower under future worst-case conditions for compliance with the City of Morgan Hill Noise Element standards.

B. Construction Noise Mitigation

Mitigation of the construction phase noise at the site can be accomplished by using quiet or "new technology" equipment. The greatest potential for noise abatement of current equipment should be the quieting of exhaust noises by use of improved mufflers. It is recommended that all internal combustion engines used at the project site be equipped with a type of muffler recommended by the vehicle manufacturer. In addition, all equipment should be in good mechanical condition so as to minimize noise created by faulty or poorly maintained engine, drive-train and other components. Construction noise can also be mitigated by the following:

- Scheduling noisy operations for the daytime hours of 7:00 AM to 8:00 PM Monday through Friday and from 9:00 AM to 6:00 PM Saturday, for compliance with the City of Morgan Hill Zoning Ordinance.

- All diesel powered equipment should be located more than 200 ft. from any residence if the equipment is to operate for more than several hours per day.

- Dirt berms and stockpiling materials can also help reduce noise to sensitive receptor locations.

As noise reduction benefit can also be achieved by appropriate selection of equipment utilized for various operations, subject to equipment availability and cost considerations, the following recommendations for minimizing impacts on the surrounding area are offered:

Earth Removal: Use scrapers as much as possible for earth removal, rather than the noisier loaders and hauling trucks.

Backfilling: Use a backhoe for backfilling, as it is less costly and quieter than either dozers or loaders.

Ground Preparation: Use a motor grader rather than a bulldozer for final grading.

Building Construction: Powers saws should be shielded or enclosed where practical to decrease noise emissions. Nail guns should be used where possible as they are less noisy than manual hammering.

Construction Phasing: Construct buildings or other significant structures at the site perimeter to help shield existing sensitive receptors from noise generated on the site.

III. Site, Traffic and Project Descriptions

The planned project site is a relatively flat parcel located along Monterey Road and Watsonville Road in Morgan Hill. The site is vacant and approximately at-grade with surrounding roadways and land uses. West Little Llagas Creek bifurcates the larger site. Only the portion of the site east of the creek is slated for development at this time. Surrounding land uses include a commercial building and a parcel currently under construction adjacent to the north, single-family residential across Calle Sueno to the west, the Royal Oaks mushroom farm across Watsonville Road to the south and single-family residential across Monterey Road to the east.

The on-site noise environment is controlled primarily by traffic sources on Monterey Road and Watsonville Road. Monterey Road carries an existing Average Daily Traffic (ADT) volume of 23,348 vehicles. Watsonville Road carries an ADT of 9,900 vehicles, Ref. (c).

The planned project includes the construction of 37 attached single-family homes in twelve buildings. A common area with a tot lot will be located near the center of the site. Ingress and egress to the project will be by way of project access streets off of Monterey Road and via an extension of a new street through the new development to the north.

III. Analysis of the Noise Levels

A. Existing Noise Levels

To determine the existing noise environment at the site, continuous recordings of the sound levels were made at two locations. Location 1 was 67 ft. from the centerline of Monterey Road. Location 2 was 70 ft. from the centerline of Watsonville Road. The measurements were made on February 25-26, 2015 using Larson-Davis LDL 812 Precision Integrating Sound Level Meters. The meters yield, by direct readout, a series of descriptors of the sound levels versus time, as described in Appendix B. The measured descriptors included the L_1, L_{10}, L_{50}, and L_{90}, i.e., those levels that are exceeded 1%, 10%, 50%, and 90% of the time. Also measured were the maximum and minimum levels, and the continuous equivalent-energy levels (L_{eq}), which are used to calculate the DNL. The measurement locations are shown on Figure 2 below.

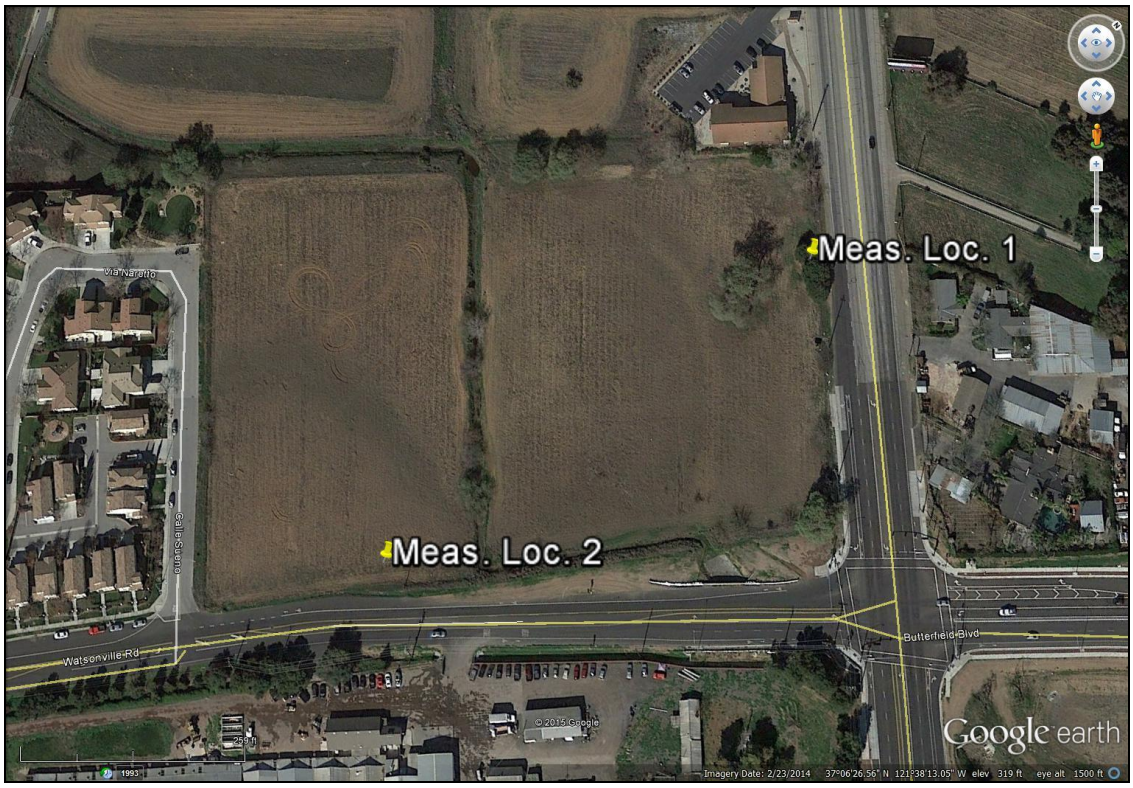


FIGURE 2 – Noise Measurement Locations

The measurements were made for a total period of 24 hours at each location and included recordings of the noise levels during representative hours of the daytime and nighttime periods of the DNL index. The results of the measurements are shown in data tables in Appendix C.

As shown in the tables, the L_{eq}'s at measurement Location 1, 67 ft. from the centerline of Monterey Road, ranged from 62.2 to 70.3 dBA during the daytime and from 52.0 to 65.5 dBA at night.

At measurement Location 2, 70 ft. from the centerline of Watsonville Road, the L_{eq}'s ranged from 58.2 to 64.6 dBA during the daytime and from 49.4 to 63.3 dBA at night.

The maximum noise levels at Location 1 ranged from 65.6 to 74.9 dBA.

The maximum noise level at Location 2 ranged from 60.4 to 71.7 dBA.

Traffic noise dissipates at the rate of 3 to 6 dB for each doubling of the distance from the source to the receiver. Therefore, other locations on the site at greater distances from the roadways will have lower noise levels.

B. Future Noise Levels

The future (2030) traffic volume data for Monterey Road and Watsonville Road were reported in the City of Morgan Hill Circulation Element. The 2030 Current General Plan and Recommended Roadway Forecast for Monterey Road predict a decrease from the existing (2009) volume of 23,438 vehicles ADT to 22,400 vehicles ADT. This decrease in traffic volume is negligible.

The 2030 Current General Plan and Recommended Roadway Forecast for Watsonville Road predict an increase from the existing (2009) volume of 9,900 vehicles ADT to 18,200 vehicles ADT. This increase in traffic volume yields a 3 decibel increase in the traffic noise levels.

IV. Evaluation of the Noise Exposures

A. Exterior Noise Exposures and Noise Levels

The DNL's for the survey locations were calculated by decibel averaging of the L_{eq}'s as they apply to the daily time periods of the DNL index. The DNL is a 24-hour noise descriptor that uses the measured L_{eq} values to calculate a 24-hour time-weighted average noise exposure. The formula used to calculate the DNL is described in Appendix B. Adjustments were applied to the measured noise levels to account for the various setback distances from the measurement location using methods established by the Highway Research Board, Ref. (d).

The results of the calculations reveal that the noise exposure at measurement Location 1, 67 ft. from the centerline of Monterey Road, was calculated to be 68 dB DNL. Under future traffic conditions, the noise exposure is expected to remain at 68 dB DNL. At the most impacted courtyards along the sides of the homes closest to Monterey Road, 85 ft. from the centerline of the road, the existing and future noise exposure was calculated to be 66 dB DNL. Thus, the noise exposures will be up to 6 dB in excess of the City of Morgan Hill Noise Element standards.

The existing and future noise exposure at the planned minimum building setback of 90 ft. from the centerline of Monterey Road was calculated to be 66 dB DNL.

The noise exposure at measurement Location 2, 70 ft. from the centerline of Watsonville Road, was calculated to be 65 dB DNL. Under future traffic conditions, the noise exposure is expected to increase to 68 dB DNL. At the most impacted courtyards along the sides of the homes closest to Watsonville Road, 133 ft. from the centerline of the road, the existing noise exposure was calculated to be 61 dB DNL. Under future traffic conditions, the noise exposure is expected to increase to 64 dB DNL. Thus, the noise exposures will be up to 4 dB in excess of the City of Morgan Hill Noise Element standards.

The existing and future noise exposures at the planned minimum building setback of 140 ft. from the centerline of Watsonville Road were calculated to be 60 and 63 dB DNL under existing and future traffic conditions, respectively.

The noise exposure in the most noise impacted area of the common area, 195 ft. from the centerline of Monterey Road was calculated to be 58 dB DNL. This noise exposure includes a 7 dB reduction factor for increased distance and a 3 dB reduction factor for acoustical shielding provided by the interposed row of homes. Thus, the noise exposure in the common area will be within the 60 dB DNL limit of the City of Morgan Hill Noise Element standards.

The exterior maximum noise levels at the most impacted planned building setback from Monterey Road were calculated to range from 63.7 to 73.0 dBA.

The exterior maximum noise levels at the most impacted planned building setback from Watsonville Road were calculated to range from 55.9 to 67.2 dBA.

The exterior noise exposures at certain courtyards will exceed the limits of the City of Morgan Hill Noise Element standards. Noise mitigation for the noise impacted private exterior areas will be required. The recommended measures are described in Section II of this report.

B. Interior Noise Exposures and Noise Levels

To determine the interior noise exposures in project living spaces, a 25 dB reduction was applied to the exterior noise exposures at the building setbacks to represent the attenuation provided by a typical building shell under a closed window condition. The closed window condition is used in this study as full-time ventilation will be provided that will allow the residents to keep their windows closed for noise control at all times without further specification. This condition also assumes the installation of standard dual-pane thermal insulating windows.

The interior noise exposures in the living spaces closest to Monterey Road will be 41 dB DNL under existing and future traffic conditions. Thus, the noise exposures will be within the 45 dB DNL limit of the City of Morgan Hill Noise Element standards.

The interior noise exposures in the living spaces closest to Watsonville Road will be 35 and 38 dB DNL under existing and future traffic conditions, respectively. Thus, the noise exposures will be within the 45 dB DNL limit of the City of Morgan Hill Noise Element standards.

The interior maximum noise levels in the most impacted living spaces closest to Monterey Road will range from 38.3 to 48.0 dBA. Thus, the interior maximum noise levels will be within the 50 dBA limit for bedrooms and with the 55 dBA limit for other living spaces.

The interior maximum noise levels in the most impacted living spaces closest to Watsonville Road will range from 30.9 to 42.2 dBA. Thus, the maximum interior noise levels will be within the 50 dBA limit for bedrooms and with the 55 dBA limit for other living spaces.

As shown by the above evaluations, the interior noise exposures and noise levels will be within the limits of the standards. Noise mitigation measures for the interior living spaces will not be required.

The above report presents a noise assessment study for the planned attached single-family development on the Lands of Young at Monterey Road and Watsonville Road in Morgan Hill. The study findings for present conditions are based on field measurements and other data and are correct to the best of our knowledge. Future noise exposures were based on information provided by the City of Morgan Hill. Significant deviations in the future traffic volumes, nearby commercial activity or changes in motor vehicle technology, speed limits, noise regulations, or other future changes beyond our control may produce long-range noise results different from our estimates.

If you need any additional information or would like an elaboration on this report, please call me.

Sincerely,

EDWARD L. PACK ASSOC., INC.

Jeffrey K. Pack
President

Attachment: Appendices A, B and C

APPENDIX A

References:

(a) Conceptual Site Plan, Lands of Young, by Bassenian/Lagoni Architects, June 30, 2015

(b) City of Morgan Hill General Plan, Health and Safety Element, "Noise", July 2001

(c) City of Morgan Hill General Plan Circulation Element Network and Policy Revisions Traffic Impact Analysis, by Fehr & Peers Transportation Consultants, May 2009

(d) Highway Research Board, "Highway Noise - A Design Guide for Highway Engineers", Report 117, 1971

APPENDIX B

Noise Standards, Terminology, Instrumentation and General Building Shell Control

1. Noise Standards

A. City of Morgan Hill Noise Element Standards

The Public Health and Safety (Noise) Element of the City of Morgan Hill General Plan, adopted July, 2001, contains land use compatibility standards for various land uses. a section on noise.

The maximum exterior noise level of 60 dBA L_{dn} shall be applied in residential areas where outdoor use is a major consideration (e.g., backyards in single family housing developments and recreation areas in multi-family housing projects). Where the City determines that providing an L_{dn} of 60 dBA or lower cannot be achieved after the application of reasonable and feasible mitigation, an L_{dn} of 65 dBA maybe permitted.

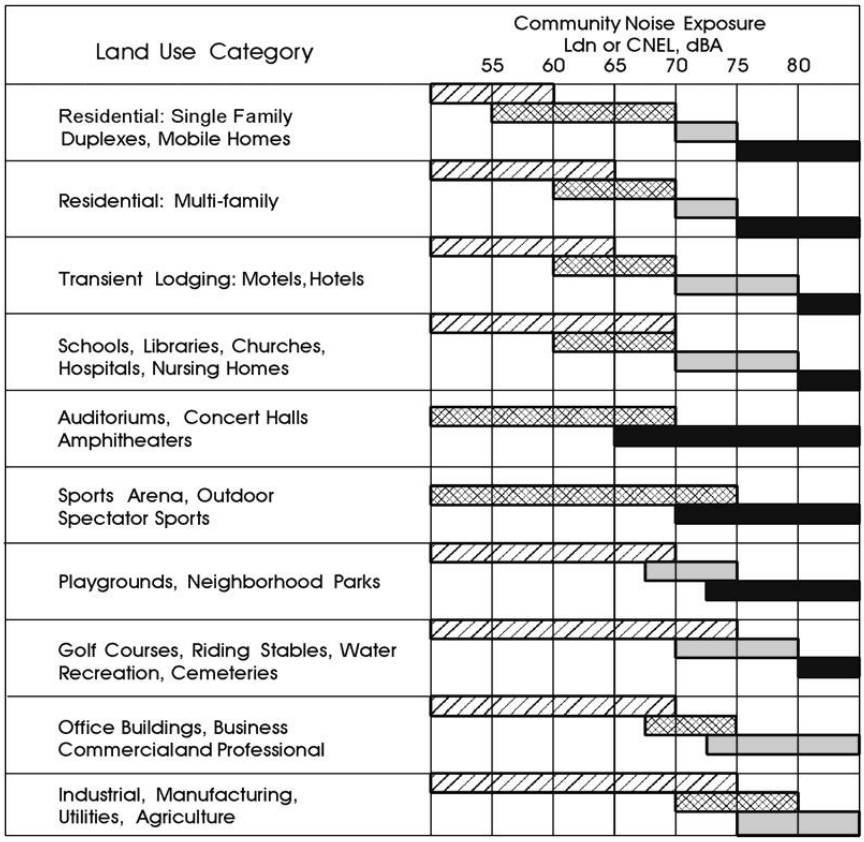
• *Indoor noise levels should not exceed an L_{dn} of 45 dBA in new residential housing units.*

• *Noise levels in new residential development exposed to an exterior $L_{dn\ of}$ 60 dBA or greater should be limited to a maximum instantaneous noise level(e.g., trucks on busy streets, train warning whistles) in bedrooms of 50dBA. Maximum instantaneous noise levels in all other habitable rooms should not exceed 55 dBA.*

The maximum outdoor noise level for new residences near the railroad shall be 70 dBA L_{dn}, recognizing that train noise is characterized by relatively few loud events.

The Noise Element references the Land Use Compatibility chart from the State of California Guidelines for the Preparation of a Noise Element. The "Normally Acceptable" standards for the land use categories are as follows:

Table 9. Acceptable Noise Levels



INTERPRETATION

NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

Source: Office of Planning and Research, State of California General Plan Guidelines, Appendix A: Guidelines for the Preparation and Content of the Noise Element of the General Plan, 1990.

2. Terminology

A. Statistical Noise Levels

Due to the fluctuating character of urban traffic noise, statistical procedures are needed to provide an adequate description of the environment. A series of statistical descriptors have been developed which represent the noise levels exceeded a given percentage of the time. These descriptors are obtained by direct readout of the Community Noise Analyzer. Some of the statistical levels used to describe community noise are defined as follows:

L_1 - A noise level exceeded for 1% of the time.

L_{10} - A noise level exceeded for 10% of the time, considered to be an "intrusive" level.

L_{50} - The noise level exceeded 50% of the time representing an "average" sound level.

L_{90} - The noise level exceeded 90 % of the time, designated as a "background" noise level.

L_{eq} - The continuous equivalent-energy level is that level of a steady-state noise having the same energy as a given time-varying noise. The L_{eq} represents the decibel level of the time-averaged value of sound energy or sound pressure squared and is used to calculate the DNL and CNEL.

B. Day-Night Level (DNL)

Noise levels utilized in the standards are described in terms of the Day-Night Level (DNL). The DNL rating is determined by the cumulative noise exposures occurring over a 24-hour day in terms of A-Weighted sound energy. The 24-hour day is divided into two subperiods for the DNL index, i.e., the daytime period from 7:00 a.m. to 10:00 p.m., and the nighttime period from 10:00 p.m. to 7:00 a.m. A 10 dBA weighting factor is applied (added) to the noise levels occurring during the nighttime period to account for the greater sensitivity of people to noise during these hours. The DNL is calculated from the measured L_{eq} in accordance with the following mathematical formula:

$$DNL = \left[[(10\log_{10}(10^{\Sigma Leq(7\text{-}10)})) \times 15] + [((10\log_{10}(10^{\Sigma Leq(10\text{-}7))})+10) \times 9]\right]/24$$

C. A-Weighted Sound Level

The decibel measure of the sound level utilizing the "A" weighted network of a sound level meter is referred to as "dBA". The "A" weighting is the accepted standard weighting system used when noise is measured and recorded for the purpose of determining total noise levels and conducting statistical analyses of the environment so that the output correlates well with the response of the human ear.

3. Instrumentation

The on-site field measurement data were acquired by the use of one or more of the sound analyzer listed below. The instrumentation provides a direct readout of the L exceedance statistical levels including the equivalent-energy level (L_{eq}). Input to the meters was provided by microphones extended to a height of 5 ft. above the ground. The "A" weighting network and the "Fast" response setting of the meters were used in conformance with the applicable standards. The Larson-Davis meters were factory modified to conform to the Type 1 performance standards of ANSI S1.4. All instrumentation was acoustically calibrated before and after field tests to assure accuracy.

Bruel & Kjaer 2231 Precision Integrating Sound Level Meter
Larson Davis LDL 812 Precision Integrating Sound Level Meter
Larson Davis 2900 Real Time Analyzer

4. Building Shell Controls

The following additional precautionary measures are required to assure the greatest potential for exterior-to-interior noise attenuation by the recommended mitigation measures. These measures apply at those units where closed windows are required.

- Unshielded entry doors having a direct or side orientation toward the primary noise source must be 1-5/8" or 1-3/4" thick, insulated metal or solid-core wood construction with effective weather seals around the full perimeter.

- If any penetrations in the building shell are required for vents, piping, conduit, etc., sound leakage around these penetrations can be controlled by sealing all cracks and clearance spaces with a non-hardening caulking compound.

- Ventilation devices shall not compromise the acoustical integrity of the building shell.

APPENDIX C

On-Site Noise Measurement Data and Calculation Tables

DNL CALCULATIONS

CLIENT: GEIER & GEIER
FILE: 47-015
PROJECT: WATSONVILLE RD SUBDIVISION
DATE: 2/25-26/2015
SOURCE: MONTEREY RD., WATSONVILLE RD

LOCATION 1 Monterey Rd.
Dist. To Source 67 ft.

TIME		10^Leq/10		
7:00 AM	65.2	3311311.2		
8:00 AM	64.8	3019951.7		
9:00 AM	64.5	2818382.9		
10:00 AM	65.1	3235936.6		
11:00 AM	65.6	3630780.5		
12:00 PM	65.7	3715352.3		
1:00 PM	66.1	4073802.8		
2:00 PM	70.3	10715193.1		
3:00 PM	66.5	4466835.9		
4:00 PM	67.0	5011872.3		
5:00 PM	67.2	5248074.6		
6:00 PM	66.1	4073802.8		
7:00 PM	66.0	3981071.7		
8:00 PM	63.2	2089296.1		
9:00 PM	62.2	1659586.9	SUM=	61051251
10:00 PM	59.8	954992.6	Ld=	77.9
11:00 PM	56.4	436515.8		
12:00 AM	54.9	309029.5		
1:00 AM	53.4	218776.2		
2:00 AM	52.3	169824.4		
3:00 AM	52.0	158489.3		
4:00 AM	56.0	398107.2		
5:00 AM	61.7	1479108.4		
6:00 AM	65.5	3548133.9	SUM=	7672977
			Ln=	68.8

Daytime Level= 77.9
Nighttime Level= 78.8
DNL= 68
24-Hour Leq= 64.6

LOCATION 2 Watsonville Rd
Dist. To Source 70 ft.

TIME	Leq	10^Leq/10		
7:00 AM	64.1	2570395.8		
8:00 AM	62.5	1778279.4		
9:00 AM	60.3	1071519.3		
10:00 AM	58.2	660693.4		
11:00 AM	58.9	776247.1		
12:00 PM	58.3	676083.0		
1:00 PM	58.3	676083.0		
2:00 PM	64.6	2884031.5		
3:00 PM	60.2	1047128.5		
4:00 PM	61.0	1258925.4		
5:00 PM	62.4	1737800.8		
6:00 PM	61.7	1479108.4		
7:00 PM	61.5	1412537.5		
8:00 PM	60.4	1096478.2		
9:00 PM	58.6	724436.0	SUM=	19849747
10:00 PM	57.1	512861.4	Ld=	73.0
11:00 PM	53.7	234422.9		
12:00 AM	53.9	245470.9		
1:00 AM	50.0	100000.0		
2:00 AM	49.4	87096.4		
3:00 AM	50.8	120226.4		
4:00 AM	55.7	371535.2		
5:00 AM	60.1	1023293.0		
6:00 AM	63.3	2137962.1	SUM=	4832868
			Ln=	66.8

Daytime Level= 73.0
Nighttime Level= 76.8
DNL= 65
24-Hour Leq= 60.1